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# MEDICAL BOTANY:

OR,

ILLUSTRATIONS AND DESCRIPTIONS

OF THE

## *Medicinal Plants*

OF THE LONDON, EDINBURGH, AND DUBLIN PHARMACOPŒIAS;

COMPRISING

A POPULAR AND SCIENTIFIC ACCOUNT OF ALL THOSE

## POISONOUS VEGETABLES

THAT ARE INDIGENOUS TO GREAT BRITAIN.

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# MEDICAL BOTANY

ILLUSTRATIONS AND DESCRIPTIONS

OF THE

VEGETABLE KINGDOM

AS FAR AS IT RELATES TO

THE HUMAN BODY

AND THE DISEASES OF MAN

BY JOHN E. SMITH, M.D.

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PHILADELPHIA

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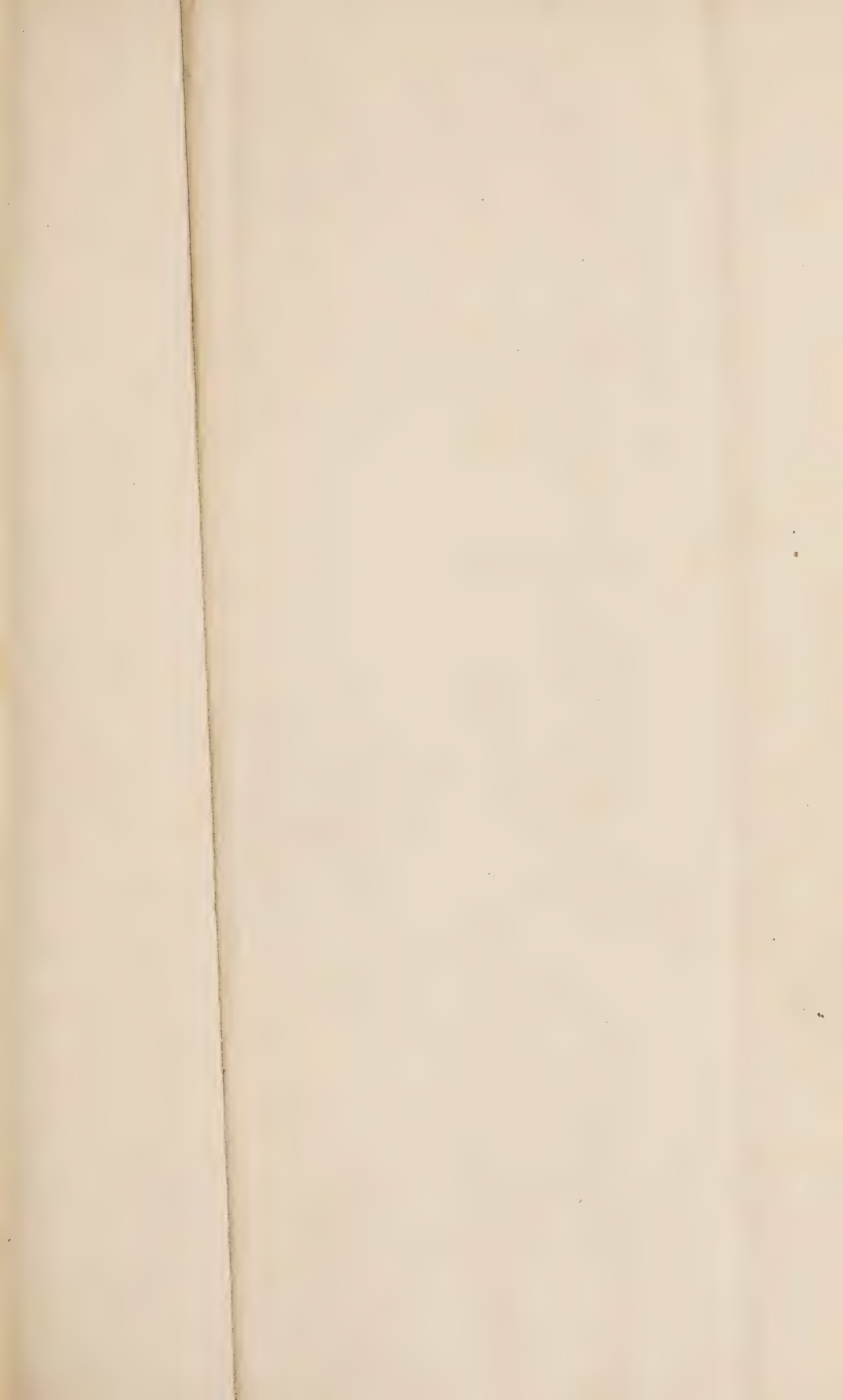
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*Gentiana lutea.*



## GENTIANA LUTEA.

*Yellow Gentian.*

Class V. PENTANDRIA.—Order II. DIGYNIA.

Nat. Ord. ROTACEÆ, Lin. GENTIANÆ, Juss.

GEN. CHAR. *Corolla* tubular at the base, destitute of nectariferous pores. *Capsule* superior, 2-valved, 1-celled. *Stigmas* 2.

SPEC. CHAR. *Corolla* 5-cleft, wheel-shaped. *Flowers* whorled, yellow. *Calyx* spathaceous.

Syn.—*Αστερίας*. Renealm. spec. 64. t. 63.

*Γεντιανή*. Diosc. et Græcor.

*Gentiana*. Camer. Epit. 415; Fuchs. Hist. 200; Dod. Pempt. 324; Clus. Hist. 1. 311.

*Gentiana major*. Ger. Em. 432; Raii Hist. 716.

*Gentiana major lutea*. Bauh. Pin. 187; Park. 350; Tourn. Inst. 80.

*Gentiana vulgaris major*, *Ellebori albi folio*. Bauh. Hist. v. 3. p. 520.

*Gentiana caule folioso*, *foliis ovatis nervosis*, *floribus verticillatis*, *rotatis*. n. 637. Hall. Helv.

*Gentiana lutea*. Lin. Sp. Pl. 329; Willd. v. 1. 1331; Scop. Carn. n. 298; Allion. Pedem. n. 365; Villars Dauph. 2. 511; Mill. t. 139. f. 2; Plenck. Ic. t. 156; Woodv. 3. t. 156; Stokes, 2. 44.

FOREIGN.—*Gentiane jaune*, ou *grand gentiane*, Fr.; *Gentiana gialla*, It.; *Jenciana amarilla*; *Gengiba*, Sp.; *Genciana amarella*, Port.; *Der gelbe Enzian*; *Bergenzian*; *Bitterwurz*, Ger.; *Geele gentian*, Dut.; *Sodrod*; *Entzian-rod*, Dan.; *Baggfota*, Swed.

OF this fine genus more than sixty species have been described by botanists, and six of these, viz. *Gentiana Pneumonanthe*, *acaulis*, *verna*, *Amarella*, *campestris*, and *nivalis* are natives of Britain. They are elegant herbaceous plants, mostly inhabiting alpine regions of the northern hemisphere, and extremely various in size, with flowers generally of a vivid blue. Most of them are perennial; some few are annual; but they are all intensely bitter, especially the roots of the larger perennial kinds. Few of the species are cultivated in our gardens, except the *Gentiana acaulis*, or Dwarf Gentian, distinguished by its humble growth, its large solitary, bell-shaped, exquisitely beautiful, azure blue flowers,



and the *G. lutea*, or Yellow Gentian, neither of which are observed to thrive well in the vicinity of large towns. The latter, which is the officinal species, grows abundantly on the Alps of Switzerland and Austria, the Apennines, the Pyrenees, in the mountainous forests of many parts of Germany, and in North America. It thrives well in this country, in a deep, rich, loamy soil, flowering about the end of June or beginning of July, and few plants are more stately and ornamental. The figure, which represents this interesting plant of the natural size, was made from a fine specimen obligingly communicated to us by the Countess of Bridgewater.

The root is perennial, long, roundish, with numerous thick contorted branches, brown externally, and yellowish within. The stem is simple, erect, hollow, roundish, and somewhat annulated and square at the base near the root, cylindrical and smooth towards the top, and rises three or four feet in height. The lower leaves are petiolate, large, spear-shaped, entire, five or six-ribbed and plaited; those of the stem are concave, ovate, smooth, sessile, almost embracing the stem, and of a yellowish green colour. The flowers are large and handsome, yellow, produced in whorls at the upper joints, and stand upon long peduncles. The calyx, which is a membranous, deciduous spathe, bursts on the side when the flower opens; the corolla is rotated, and divided into five or more long, narrow, spreading, elliptical segments. The filaments vary from five to eight, according to the number of segments, and alternate therewith; they are shorter than the corolla, and furnished with long erect anthers. The germen is conical, crowned with two sessile reflected stigmas; and becomes a conical capsule, divided into two valves, and contains numerous small, compressed, winged seeds. Fig. (a) represents a ripe capsule; (b) a valve of the capsule, containing the seeds; (c) a seed; (d) an outline view of the plant in miniature, to show its general habit.

The scientific name *Gentiana*, was conferred on this genus in commemoration of Gentius, a king of Illyria, who, according to Pliny, first discovered, or at least experienced the virtues of the principal species, the *Gentiana lutea* of Linneus, in the cure of



the plague, which infected his army. The vulgar name *Fell-wort* or *Gall-wort*, is strictly applicable to the whole genus, on account of the extreme bitterness of the plants which compose it.

CULTURE.—Yellow Gentian delights in a deep loamy soil and a shady situation, where it will thrive much better than in a light soil, or an open exposure. It is propagated by seed, which should be sown in pots soon after it is ripe, for if it is kept to the spring it will not succeed; these pots should be placed in a shady situation, and kept clean from weeds. In the spring the plants will appear, when they must be duly watered in dry weather, and kept free from weeds till the following autumn; they should then be carefully shaken out of the pots, so as not to break or injure the roots; and a shady border of loamy earth should be well dug and prepared to receive them, into which the plants should be put, at about six inches distance each way, observing to let the tops of the roots be a little below the surface of the ground, then press the earth close to the roots; after this they will require no farther care, but to keep them constantly clean from weeds; and if the following spring should prove dry, they should be constantly watered, which will greatly forward their growth. In this border the plants may stand two years, by which time they will be fit to transplant where they are designed to remain; therefore in autumn, so soon as the leaves decay, they may be removed; but as the roots of these plants run deep into the ground, like carrots, there must be great care taken in digging them up not to cut or break their roots, for that will greatly weaken, if it does not kill them. After the plants are well fixed in their places, they require no culture, but to dig the ground about them early in the spring before they begin to shoot, and in the summer to keep them clean from weeds. The roots of these plants will continue for many years, but the stalks decay every autumn; the same roots do not flower two years together, nor seldom oftener than every third year; but when they flower strong, says Professor Martyn, to whose edition of Miller's Dictionary, we owe the preceding remarks, they make a fine appearance; and as these delight in moist shady ground, where but few ornamental plants will thrive, they should not be



wanting in good gardens. The dried roots are imported into this country chiefly from Germany; but we know no reason why the plant should not be cultivated in our physic gardens.

QUALITIES AND CHEMICAL PROPERTIES.—Gentian roots are long, and contain so much water, that when dried, they are much wrinkled. Externally they are brown, internally spongy, and of a deep yellow colour. The best roots are of a middling size, of a lively yellow colour, tough, and most free from fibres. The older and larger roots are more porous; the younger and tender more compact. Neuman obtains from ꝑxvj. of the root, by means of rect. spirit, ꝑviiiß. of resinous extract; and from water, ꝑix. of a gummy one. Sometimes the *Thora valdensis* of Ray, or the *Aconitum pardalianches* of Bauhine, is sold for the Gentian. It is known from the true Gentian by a paler colour externally, having longitudinal wrinkles; its texture is closer than that of Gentian; whitish within, and not bitter; but when chewed, only mucilaginous. It is the *Ranunculus Thora*, Lin. Sp. Pl. 775. Gentian yields its virtues to ether, alcohol and water. A singular circumstance is connected with the analysis of this root: M. Henry and M. Caventou being employed at the same time in this pursuit, without being aware of each other's proceedings; both discovered the substance termed *gentianine*, the principal on which the bitter and medicinal properties of the Gentian seem to depend; and so little did they differ in the results of their investigations, that they resolved to promulgate their labours together.\*

*Preparation of Gentianine.*—The powder of gentian is to be exposed to cold ether, which at the end of forty-eight hours furnishes a greenish tincture; this being filtered, poured into an open vessel, and exposed to heat, if the liquor be sufficiently concentrated, upon cooling, settles into a yellow crytalline mass, possessing a decided smell and taste of gentian. This mass is then to be treated with alcohol until it ceases to yield a citron colour. The washings are to be mixed, and exposed to a strong heat, and the yellow crystalline substance begins to re-appear, assuming at the close of the evaporating process a solid mass, extremely bitter. Taken up again by weak

\* A remarkable fact, says Mr. Magendie, on two accounts—first, as proving the degree of perfection to which the modes of vegetable analysis have of late years reached; and secondly, as illustrating the change that the progress of science has wrought upon its votaries. Had such a contingency happened 100 years back, the consequence would have been an obstinate dispute between the parties. In the present day it has been the cause of pleasure to them, each finding the importance of his discovery confirmed by that of the other.



alcohol, it is partially dissolved, a certain portion of oily matter remaining separate. This last spirituous solution, besides the bitter principle of the gentian, contains an acid substance, and the odorous principal also.

Upon evaporating this liquid to dryness, washing the residue in water, adding a little calcined and well-washed magnesia, boiling and evaporating in a water-bath, the greater part of the odorous matter of the gentian is driven off; the acidity is removed by the magnesia, and the bitter principle remains, partly free, and partly in a state of combination with magnesia, to which it imparts a beautiful yellow colour. Then, upon boiling this magnesia with ether, the greater part of the bitter principle is obtained pure, and is insulated by evaporation. If it be wished to separate the greater part of the bitter principle which remains in the magnesia, in a fixed state, and which could not be taken up by the ether, we may treat it with oxalic acid, in a quantity sufficient to produce slight acidity. This acid unites with the magnesia, and sets the bitter principal at liberty, which may be obtained in the manner already pointed out.

*Properties of Gentianine.*—This substance is yellow, inodorous, possessing very strongly the aromatic bitter taste of the gentian, which is much increased by solution in an acid. It is highly soluble in ether and in alcohol, and separates by spontaneous evaporation in the form of very small yellow crystalline needles. It is much less soluble in cold water, which nevertheless it renders exceedingly bitter: in boiling water it is more readily dissolved. Diluted alkalis deepen its colour very much, and dissolve rather more of it than water will alone.

Acids diminish its yellow colour in a very remarkable manner. With sulphuric and phosphoric acids the solution is almost colourless; but yellowish with the weaker acids, such as the acetic. Concentrated sulphuric acid carbonizes it and destroys its bitterness.

Exposed in a glass tube to the heat of boiling mercury, gentianine sublimes in the form of small yellow crystalline needles, and is partially decomposed. It has no sensible effect on turnsol, either when blue, or reddened by acids—being apparently neutral.

*Action of Gentianine on the Animal and Human System.*—M. Magendie has ascertained by experiment that this substance is not possessed of any poisonous qualities; several grains injected into the veins produced no effect. He himself swallowed two grains dissolved in alcohol, and was merely sensible of the extreme bitter taste, and a slight sensation of heat in the stomach.

*Medicinal Employment.*—The tincture seems to be the preferable form for administration; and it may be made in the following manner:

Take of	Alcohol at 24°	. . .	1 ounce.
	Gentianine	. . .	5 grains.

Mix.

This may be substituted for the tincture of gentian, and employed in the same circumstances.

<i>Syrup of Gentianine.</i> —Take of	Simple syrup . .	1 pound.
	Gentianine . . .	16 grains.

Make a syrup.

This is one of the best bitters that can be employed in scrophulous affections.



MEDICAL PROPERTIES AND USES.—The root of this plant has been used from time immemorial as a valuable tonic, and occupied the first place as a febrifuge before the discovery of the Cinchonas. In large doses it is somewhat aperient; but in smaller ones is found highly beneficial in dyspepsia, gout, hysteria, and jaundice; in cholosis and torpor of the intestinal canal; indeed, in all those cases of debility in which it is generally considered proper to administer tonics. The infusion, as ordered by the London College, is the most elegant and proper mode of administering it, and forms an excellent medium for the administration of chalybeates, mineral acids, and neutral salts, with which it is often necessary to combine it. The following is the form:

Take of, Gentian root sliced, orange peel bruised, coriander seeds bruised, of each *a drachm*.

Fresh lemon peel *two drachms*, boiling water twelve *fluid ounces*.

Macerate for an hour in a vessel, lightly covered, and strain.

“It is given,” remarks Dr. T. Thompson, “in dyspepsia and chlorosis, united with chalybeates, or with alkalies;” in gout and diarrhœa, with absorbents and atonic aromatics; in jaundice, with rhubarb and saline purgatives; and in dropsies, with squills and neutral salts. The dose is a small wine-glass full three or four times a-day.

A strong simple infusion is known to possess antiseptic properties, and has therefore been applied externally to putrid ulcers. Before hops had established their reputation, this, with many other bitter herbs, was occasionally used in brewing.

Though the root of the *Gentiana lutea* is one of the most valuable bitters now employed in medicine, the roots of several other species are supposed to be equally efficacious. The dwarf autumnal gentian, *Gentiana Amarella*, (*Eng. Bot. v. 4. t. 236*), which obtains a place in some of the foreign dispensatories, by the name of *Gentianella*, is said to possess sensible qualities and medicinal properties similar to those of the larger kinds. The purple gentian, *Gentiana purpurea*, (*Andr. Bot. Repos. t. 117*), or the *cursuta* of the former editions of the



Edinburgh pharmacopœia, which is a native of the Alps, and was introduced into this country by Saussure in 1768, is a powerful bitter, greatly resembling in appearance and taste the officinal gentian, but in no degree superior, though used by some practitioners of Edinburgh for nearly half a century. Another species of this genus, the Chirayit Gentian or Wormseed plant, the *Gentiana Chirayita*, of Roxburgh, has lately been brought into notice in England by Mr. Baker. It is an herbaceous plant, and is said by Dr. Fleming to be indigenous to the mountains to the westward of the Ganges, “having leaves, stem clasping lanceolate, 3-5 nerved; corolla rotate, four-cleft, smooth; stamens four; capsule ovate, bifurcate, as long as the calyx.” (Roxb. MSS.) It is said by Dr. Ainslie to be much used in decoction and infusion by the European practitioners of Bengal, and is found efficacious in combination with the *caranja* nut, (*Guilandina Bonducella*, Lin.) in curing intermittent fevers. “What appears in the bazars of Lower India, under the Tamol name *chayraet toochie*,) are small stalks of a light grey colour, and very bitter, but pleasant taste; the natives consider them as tonic, stomachic, and febrifuge, and prescribe a decoction or infusion of them, in the quantity of a small teacupful, twice daily.”

From enquiries which we made from a Hindoo, we ascertained that the infusion of the Chirayit Gentian, made very strong, is taken in large doses as a tonic, and often induces vomiting from its intense bitterness. It likewise occasionally acts with freedom on the bowels, producing copious bilious evacuations, on account of which it is highly esteemed in liver complaints. Given in the form of infusion, made with two drachms of the herb in a half pint of water; it seems simply to possess properties allied to our officinal plant.

#### MISTURA GENTIANÆ CUM MAGNESIA.

R    *Magnesiæ carbonatis* ʒiiss.  
      *Infusi Gentianæ compositi* ʒvj.  
      — *Caryophyllorum* ʒij.

Fiat mistura, de quo sumat cochlearia tria majora bis die.—In dyspepsia, attended with acidity, this mixture generally proves very beneficial.



#### MISTURA GENTIANÆ SULPHURICA.

- R. Infusi Gentianæ compos. ℥v.  
Tincturæ Gentianæ comp. ℥j.  
Acidi sulphurici diluti ℥j.

Fiat mistura, cujus cochlearia tria majora ter die sumantur. This mode of administering gentian is recommended by Mr. Brande, where dyspepsia is attended with nausea and aversion to food.

#### INFUSUM GENTIANÆ CUM RHEO.

- Rj. Gentianæ Rad. concisæ. ℥j.  
Rhei Rad. concisæ. ℥ij.  
Agnæ Ferventis. ℥xii.  
Macera per horam, cola, et adde  
Ammoniæ subcarbonatis. ℥ij. Dosis, ℥ij.

In some forms of dyspepsia, chronic rheumatism, and irregular or chronic gout.

#### HAUSTUS GENTIANÆ CUM SENNA.

- Rj. Infusi gentianæ compositi ℥j.  
Infusi sennæ comp. ℥ss.  
Tincturæ sennæ ℥ij.  
Tincturæ zingiberis ℥℥. Misce. Bis quotidie sumendus.

#### HAUSTUS GENTIANÆ AMMONIATUS.

- Rj. Infusi gentianæ comp. ℥j.  
Sodæ carbonatis gr. x.  
Rhei pulveris gr. iij.  
Tinct. lavandulæ comp. ℥℥. Misce. Fiat haustus bis die capiendus.

#### PILULÆ GENTIANÆ CUM AMMONIA.

- Rj. Extracti gentianæ.  
Ammoniæ subcarbonatis aa. Misce. Fiant pilulæ xxiv. Sumantur duæ bis vel ter die.—In heartburn, in gouty habits.

- OFF. PREP. Extractum gentianæ, L. E. D.  
Infusum gentianæ comp. L. D. D.  
Tinctura gentianæ comp. L. E. D.  
Vinum gentianæ compositum, E.









*Chenopodium olidum* L.

C. F. Smith del.

W. H. B. sculp.



## CHENOPODIUM OLIDUM.

*Stinking Goose-foot.**Class V. PENTANDRIA.—Order II. DIGYNIA.**Nat. Ord. HOLERACEÆ, Lin. ATRIPLICES, Juss. CHENOPODEÆ, Decand.*GEN. CHAR. *Seed* lenticular, tunicated, superior.SPEC. CHAR. *Leaves* ovate, somewhat rhomboid, entire. *Spikes* dense, axillary, leafless.*Syn.*—*Blitum foetidum*, *Vulvaria dictum*. *Raii Syn.* 156.*Atriplex olida*. *Ger. Em.* 327. *f.**Atriplex foetida*. *Bauh. Hist. v. 2.* 974. *f.* 995; *Moris. Hist. 2. t. 31. f. 6.**Garosmus*. *Dod. Pempt.* 616. *f.**Chenopodium*. *n.* 1577; *Hall. Hist. v. 2.* 266.*Chenopodium vulvaria*. *Lin. Sp. Pl.* 321; *Willd. v. 1. p.* 1305; *Woodv. t.* 145.*Chenopodium olidum*. *Fl. Brit.* 277; *Eng. Bot. v. 15. t.* 1034; *Curt. Lond. t.* 20; *Hook. Scot.* 83.FOREIGN.—*L'arroche foetide*, *Fr.*; *Vulvaria*; *connina*, *It.*; *Stinkender gänsefuss*, *Ger.*

THIS species, which is readily distinguished from all others of the genus, by its procumbent stem, and strong foetid smell, is an indigenous annual, growing on waste ground, especially among sand or rubbish near the sea. It occurs sparingly in several places in the neighbourhood of London, at the foot of walls or paling, where it flowers from July to September.

The root is small and fibrous. The stems are several, branched, spreading, or prostrate, channelled, and grow from six to twelve inches high. The leaves are numerous, acute, entire, ovate, or slightly rhomboid, scarcely an inch long, and stand alternately upon short footstalks. The whole herb is of a dull green colour, and sprinkled with a white pellucid meal, which, when touched, exhales a strong nauseous odour, like stale salt-fish. The flowers are small, of a pale green or yellowish colour, and placed in ob-



long interrupted spikes. The calyx consists of one pentagonal leaf, cut into five acute, ovate, concave, permanent segments : there is no corolla. The filaments are awl-shaped, about the length of the segments of the calyx, and furnished with round, 2-lobed anthers. The germen is orbicular, and supports two short styles, terminated with obtuse stigmas. The seed is solitary, lenticular, dotted, and inclosed by the calyx, which supplies the place of a capsule. Fig. (a) represents a flower ; (b) the calyx enveloping the seed ; (c) a naked seed :—slightly magnified.

QUALITIES AND CHEMICAL PROPERTIES.---According to MM. Chevalier and Lassaigne, this plant contains uncombined ammonia, on which its odour seems principally to depend. This odour is extremely nauseous, resembling that of putrid fish. Gerrard remarks, that “it is called stinking orrach by Cardus, *Garosmus*, because it smelleth like stinking fish ; it is also called *tragium*, and *atriplex fœtidagarum olens* by Pena and Lobel, for it smelleth more stinking than the rammish male goat, whereupon some, by a figure, have called it *vulvaria*.” When the plant is bruised with water, and the liquor expressed and afterwards distilled, we procure a liquid which contains the subcarbonate of ammonia, and an oily matter, which gives the fluid a milky appearance. If the expressed juice of the chenopodium be evaporated to the consistence of an extract, it is found to be alkaline. On analysis, it has been found to yield subcarbonate of ammonia, albumen, ozmazone, an aromatic resin, a bitter matter, nitrate of potass in large quantities, acetate and phosphate of potass, tartrate of potash. It is said that one hundred parts of the dried plant produce eighteen of ashes, of which half are potash.

MEDICAL PROPERTIES AND USES.—This species of chenopodium once obtained a place in the London and Edinburgh Pharmacopœias, and was considered by Cullen to be a valuable anti-spasmodic. He also gave it in hysteria, for which it is much commended by many old authors. Owing, however, to its losing its sensible qualities when dried, it gradually fell into disuse amongst medical men, and was discarded from our authorized materia medica.

Some years ago, Mr. Houlton, the present able Professor of Botany to the Medico-Botanical Society of London, being in the neighbourhood of Coggeshall, in Essex, learnt from an old gardener, that the poor people were constantly employing it with great success as an emmenagogue. As the celebrated



Dale lived in that neighbourhood, he thought it probable that this knowledge of its virtues had been handed down from him; and on reference to his *Pharmacologia*, p. 75, will be found the following statement ‘*Uterina est, menses provocat, foetum mortuum secundinamque expellit, in hystericis multum prodest.*’ On making inquiries in town, it was ascertained that our old ladies were also well acquainted with its virtues; and so regular is the demand for this herb at Covent Garden, that almost any quantity of it can be obtained from Mitcham, where it is regularly cultivated for the supply of the market. Under these circumstances, Mr. Houlton embraced several opportunities to put its merits to the test, and his success in *leuco-phlegmatic* habits has been eminently successful. In the *Medical and Surgical Journal*, of which he was one of the editors, he has satisfied himself by narrating one well-marked case of its successful operation; and during the last session of the Medico-Botanical Society, he sent some of the extract, or rather inspissated juice prepared by spontaneous evaporation, accompanied by a paper on its properties. Earl Stanhope, the noble president, whose admirable printed oration, proves both the extent of his information and his wish to promote the increase of knowledge on these subjects, anxious for further proofs of the efficacy of the *C. olibdum*, did Mr. Churchill the honour to send him a small quantity of the extract, accompanied by a request that he would try it, and communicate to the Society the result; and he found on experiment, that in three cases out of four of suppressed menstruation, it immediately succeeded in restoring the secretion, unaccompanied by any other sensible effects.

It is well known, that the suppression of this periodical secretion is generally supposed to arise from deficiency of action in the uterine vessels, which has led to the general practice of giving tonics, or diffusible and permanent stimuli. It is doubtful, however, as Dr. Murray remarks, whether there is further, any particular determination to these vessels; for although many substances, when received into the stomach, have their



stimulant operation determined more particularly to one organ than another, yet experience has not hitherto proved, that any of the substances styled emmenagogues, are capable of producing their effect from any specific power. These remarks of Murray were certainly true when they were penned ; the only medicines that could be at all relied on, being hydragogue purgatives, which, from acting more particularly on the large intestines, communicate a stimulating effect to the vessels supplying the womb. Since his time, an indigenous vegetable substance, the *ergot*, or spurred rye, has been proved to exert its peculiar effects on the uterus ; and our readers, by referring to No. 29 of “ Medical Botany ” will find a full account of its chemical and medical properties, accompanied by a botanical description of the plant. If ergot be capable of producing such extraordinary effects, we would ask, why we should despair of finding a *direct emmenagogue*, or a medicine capable of producing a flow of the menses by its own peculiar or specific action on the uterus ? We are firmly convinced, that the *C. olidum* is possessed of such virtues ; and those of our readers who may be inclined to try the inspissated juice or *extract* in doses of from five to fifteen grains, given at bed-time, may obtain any quantity of Mr. Barnes, Chemist, Brown Street, Bryanston Square, who has prepared several pounds of it. It must be borne in mind, that it does not succeed in plethoric habits, unless they have been reduced by venesection and saline purgatives ; nor is its success to be so often expected even then, as in the pale or cachectic patient.







*Ulmus campestris.*



## ULMUS CAMPESTRIS.

*Common Small-leaved Elm.*

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*Class V. PENTANDRIA.—Order II. DIGYNIA.**Nat. Ord. SCABRIDÆ, Lin. AMENTACEÆ, Juss.*

GEN. CHAR.—*Corolla* 0. *Capsule* compressed, membranous, superior.

SPEC. CHAR.—*Leaves* doubly serrated, rough. *Flowers* nearly sessile, 4-cleft. *Capsule* oblong, deeply cloven, naked.

*Syn.*—*Ulmus minor*, folio angusto scabro, *Good. in Ger. Em.* 1480. *f.*; *Raii Syn.* 469.

*Ulmus*, *Dod. Pempt.* 837. *f.*

*Ulmus campestris*, *Lin. Sp. Pl.* 327; *Willd. v. 1.* 1324; *Fl. Brit.* 281.; *Eng. Bot. v. 27. t.* 1886; *Woodv. 2d. ed.* 710. *t.* 242.

FOREIGN.—*Orme*, Fr.; *Olmo*, It. Sp. and Port.; *Ulmrinde*, Ger.; *Alm*, Dan. and Swed.; *Olm*, Dut.; *Ilim*, Russ.

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THE common small-leaved elm is generally understood to be indigenous to the south of England, though the fact is doubted by Evelyn and others. Several superstitious customs were practised on this and other elm-trees by our Saxon ancestors. A canon of King Edgar, in the tenth century, may be thus literally translated. “We decree that every priest shall anxiously advance Christianity, entirely abolish all heathenism, and forbid tree-worship, divination with the dead, omens, charms with songs, man-worship, and many other illusions which are practised in asylums on Elms, (hence perhaps the name Witch or Wych-Elm,) and on various other trees, by which many are perverted who ought not so to be.” Dr. Hunter justly remarks, there can be no stronger proof of its being known at a very early period, than that many compound names of places, of which, the word “elm” forms a part, are to be met with in “Doomsday Book,” the drawing up of which was finished in 1086.

The small-leaved elm grows abundantly in the woods and hedges near London, flowering in April, long before the foliage expands. It is a lofty tree, sending off many round, spreading, crooked, leafy branches, and is covered with a rugged dark-brown bark. The leaves are elliptical, contracted towards each end, doubly serrated, unequal at the base; they are very rough, wrinkled, and veined, stand alternately on footstalks, and are of a dark-green colour. The flowers are small, and grow in numerous dense, round, dark-purple clusters, from the sides of the branches before the evolution of the leaves, each flower being nearly sessile, with an oblong fringed bractea at its base. The calyx is inferior, turbinate, wrinkled, permanent, and divided at the limb into four oblong obtuse segments of a pale brownish red colour. There is no corolla. The filaments are four, twice as long as the calyx, and bearing dark-purple anthers. The germen is oblong, compressed, and supports two styles, which bend outwards, and are terminated by the stigmas, which consist of a downy line along the upper surface of each style. The flowers are succeeded each by an oblong, wedge-shaped flat pale-brown capsule, which has a deep sinus at the extremity, and incloses a single seed. Fig. (a) represents a flower with its bractea magnified; (b) the styles; (c) the capsules; (d) *Scolytus destructor* of the natural size.

Of the elm there are about fifteen species, four of which, besides the *campestris*, are naturalized in Britain, viz.—the broad-leaved elm, called also the wych hasel, (*U. montana*;) the common cork-barked elm, (*U. suberosa*;) the Dutch cork-barked elm, (*U. major*;) and the smooth-leaved, or wych elm, (*U. glabra*.) In the first of these, the leaves are larger than any of the native species; the bark is smooth and even, and the flowers are stalked, and in looser tufts. The common cork-barked elm has stalked, four or 5-cleft flowers, and like the Dutch elm, (which has sessile flowers,) is chiefly remarkable for its quick growth and rough corky bark. The wych elm, which is very common in Essex, has small leaves, smooth on both sides, nearly sessile, 5-cleft flowers, and obovate, deeply cloven capsules. Linneus confounded all the European elms under the name of *Ulmus campestris*.



The elm attains a large size, and lives to a great age. Mention is made of one planted by Henry IV. of France, which was standing at the Luxembourg Gardens in Paris at the commencement of the French revolution. One at the upper end of Church-lane, Chelsea, (said to have been planted by Queen Elizabeth,) was felled in 1783. It was thirteen feet in circumference at the bottom, and one hundred and ten feet high. Mr. Coxe mentions an ancient elm at Raglan Castle, in Monmouthshire, which was twenty-eight feet five inches in circumference near the root. Piffes' elm, near the Boddington Oak, in the vale of Gloucester, was, in 1783, about eighty feet high, and the smallest girth of the principal trunk was sixteen feet. From the planting of Sir Francis Bacon's elms, in Gray's Inn Walk, in 1600, and their decay about 1720, one would be disposed to assign the healthy period of the elm to be about one hundred and twenty years. The health of these must have been, however, affected in some degree by the smoke of London. The superb avenue called the "Long Walk," at Windsor, was planted at the beginning of the last century. Most of the trees have evidently passed their prime. The most profitable age of elms, both for quantity and quality of timber, is supposed to be about fifty or sixty years. The predominance of resin insoluble in water, and not liable to be acted on by the atmospheric air, has been assigned as the cause why the pine and the larch are more durable than the silver fir and the spruce. "It is possible," says Miller, "that the elm is injured by too much humidity in the soil upon which it grows; and that the Dutch elm, which is usually classed as a different species from the common elm, may be merely the common one debased in the humid soil of Holland."

The elm has been always considered as one of the trees which can be most safely transplanted after attaining a considerable size. Evelyn gives several accounts of this species being thus removed into other soils. In the year 1816, a much improved mode of transplanting this and other forest trees. was introduced by Sir Henry Stuart, of Allanton, for an account of which we must refer our readers to his "Planter's Guide."

The *culture* of the elm is effected in different ways; as by seed, suckers, layers, and grafting. All the sorts and varieties are of hardy growth, and will succeed perfectly well in any common soil and exposure, but delight most in a deep rich earth of a stiffish loamy nature, which is rather inclined to moisture, the English sorts having the best situations and soil, and the Wych and Dutch kinds those which are inferior in these respects. The common small-leaved elm is of slower growth than our other wild species, with a harder, more durable, and consequently more valuable wood, which is preferred for most kinds of wheelwright work, pipes for conducting water under the ground, water, pumps, coffins, and various other useful purposes.

The elm-tree is liable to be injured, and is sometimes entirely destroyed by a minute beetle, (*Scolytus destructor*,) which, in its preparatory state, feeds upon the soft inner bark. This insect, which inhabits the elms of France and Germany, as well as England, was particularly prevalent, and caused incalculable mischief in St. James' and Hyde Parks four or five years ago. The leaves of the trees infested by the scolytus first become yellow, the trees themselves then die at the top, and ultimately perish. "From March to September," says Mr. Curtis, (to whose valuable and elegant work we are indebted for the accompanying figure,) "the female may be found upon the trunks of elm-trees, making her way through the bark; after which, she proceeds between the bark and the wood; forming a passage, and depositing her eggs on each side in her course till she is exhausted, when she dies, and may generally be found at the extremity of the channel; when the eggs which are deposited being close to each other, hatch, the larvæ beginning to feed, working nearly at right angles from the path of the parent, proceeding almost parallel to each other, as expressed in the engraving."

In order to check the ravages occasioned by these formidable little animals, Mr. Macleay recommends the infected trees to be brushed over in March, with a mixture of tar and train oil, a certain height above ground, which will destroy the larvæ.\* An

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\* See Macleay in *Edinburgh Philos. Journ.* No. XXI. July 1824, p. 123. Curtis *British Entomology*, v. 1. t. 43.



insect, similar in its economy, but belonging to a different genus, the *Bostrichus typographus* of Fabricius, and known in Germany under the name of *Wurm trokniss*, (decay caused by worms,) occasioned terrible devastation among the pines, in the Hartz forest about the year 1783.

QUALITIES AND CHEMICAL PROPERTIES.—The inner bark, which is the part used in medicine, has a yellowish colour, and a mucilaginous bitter astringent taste, without smell. The bark in the spring is most advantageously striped from the small, but not from the smallest branches; and in autumn from the branching roots. The decoction, when evaporated, leaves a little semi-transparent substance, soluble in water, but insoluble in alcohol and ether, which Dr. Thomson, in his Dispensatory, regards as *ulmin*; or rather, as a peculiar modification of mucus, combined with extractive, gallic acid, and super-tartrate of potass. *Ulmin* is the name given to a peculiar substance which was discovered by the celebrated Klaproth, in the bark of the elm. It exists in the bark of almost all trees, but is generally obtained by spontaneous exudation from the elm. It may be prepared by acting on elm-bark by hot alcohol, and cold water; and then digesting the residue in water which contains an alkaline carbonate in solution. In the solid state it has the appearance of gum. It has no taste, and is soluble, though sparingly, in water and alcohol. The alkaline carbonates dissolve it more abundantly, and it is precipitated from its solution in them by acids and metallic salts. Dobreiner states, that gallic acid is converted into ulmin, by dissolving it in ammonia, and exposing the solution to oxygengas. Ulmin has not hitherto been applied to any particular use.

MEDICAL PROPERTIES AND USES.—The decoction of elm-bark has been recommended in various cutaneous diseases; particularly of the herpetic and leprous kind. Banau recommends its use in fluor albus, chronic rheumatism, scrofulous affections, tinea capitis, scurvy, and in old inveterate ulcers. In Vol. II. of the Medical Transactions, five cases of inveterate eruptions are narrated by Dr. Lysons, as having been cured by this remedy; but it is doubtful whether adjuncts are not the

causes of relief. Dr. Lettsom also cured what he supposed to be the *lepra ichthyosis* of Sauvages by it; but it is now fallen into disuse as a remedy of very little power. We think, however that it deserves more extensive trials before we discard it from our materia medica. The decoction (*Decoctum Ulmi* of the pharmacopœias) is made by boiling four ounces of the inner bark in four pints of water down to two pints. *Dose* from four to six or eight ounces twice a day.

The bark of the elm dried and ground to powder has been mixed with meal, in Norway, to make bread in times of scarcity. The leaves also afford a pleasant nourishment to cattle, and in some parts of Hertfordshire the poor people gather them in sacks for this purpose.





Pl. 43.



*Eryngium maritimum.*

G. Reid del.

Weddell Sc.

London Published for the Authors Dec. 1822.



ERYNGIUM MARITIMUM.

*Sea Eryngo, or Sea Holly.*

*Class.* V. PENTANDRIA.—*Order* II. DIGYNIA.

*Nat. Ord.* UMBELLATÆ, *Lin.* 45. UMBELLIFERÆ, *Juss.* 60.

GEN. CHAR. *Flowers* sessile, capitate. *Petals* oblong, equal, inflexed. *Receptacle* conical, scaly. *Fruit* ovate, bristly.

SPEC. CHAR. *Radical leaves* roundish, plaited, spinous. *Scales* of the receptacle 3-cleft.

*Syn.*—*Eryngium marinum.* *Raii Syn.* 222; *Ger. Em.* 1162. *f.*; *Camer. Epit.* 448. *f.*; *Dod. Pempt.* 730. *f.*; *Matth. Valgr. v.* 2. 42. *f.*; *Bauh. Hist. v.* 3. 86. *f.*

*Eryngium maritimum.* *Lin. Sp. Pl.* 337; *Willd. v.* 3. 1358; *Fl. Brit.* 288; *Eng. Bot. v.* 10. *t.* 718; *Bauh. Pin.* 386; *Hook. Scot.* 87; *Woodv. t.* 102.

FOREIGN.—*Panicaut commun,* Fr.; *Eringio,* Ital.; *Eryngo,* Span.; *Dracher distel,* Ger.

THIS is a perennial plant, growing abundantly on the sandy sea-shores throughout Europe; flowering in July and August. The specimen from which the annexed figure was drawn grew at Mersea island, on the Essex coast, where we also found *Hyoscyamus niger*, *Lepidium latifolium*, *Glaucium luteum*, *Inula crithmoides*, *Convolvulus Soldanella*, and several other rare, or very local, British plants.

Sea Holly has a creeping, cylindrical, whitish root, as thick as an ordinary finger, and so long that it is with difficulty plucked up entire. The stem rises to the height of twelve inches or more; it is round, branched, thick, leafy, and striated. The radical leaves are roundish or kidney-shaped, stalked, plaited, and 3-lobed; those of the stem are sessile; and the whole are smooth ribbed, veiny, of a pale glaucous or sea-green colour with an elegant blue tint, and toothed with sharp spines, like those of the holly, from which the plant has obtained its English name. The flowers are disposed on the summit of the stem and branches in dense conical heads, like those of thistle. They are small, numerous, of a bright blue colour, and separated from each other

by little rigid, chaffy scales, and encompassed with a large pinatifid spinous involucre. The scales, one of which accompanies each sessile floret, are three-toothed, longer than the florets, and spinous. The calyx is superior, and consists of five erect, pointed, equal leaves. The corolla is composed of five equal, oblong, channelled petals, with their points turned inwards. The five filaments are capillary, longer than the corolla, bearing oblong anthers; the germen is ovate-oblong, clothed with erect bristles, and furnished with two filiform, nearly erect styles, and simple stigmas. The fruit is bristly, separable lengthwise into two parts, and consisting of the like number of oblong, nearly cylindrical seeds. Fig. (a) represents a flower magnified; (b) the same, showing the inflexed petals, &c.; (c) a petal; (d) the styles; (e) the 3-cleft scale.

QUALITIES AND MEDICAL PROPERTIES.—*Eryngo* root has a sweet, agreeable taste and aromatic smell; and it gives out its properties to water. This root was formerly supposed to be possessed of many virtues. Boerhaave reckons it as the first of aperient diuretic roots, and it has been recommended in gonorrhœa and visceral obstructions, particularly of the gall-bladder and liver. Menstrual suppressions are reported to be removed by it, and quartan agues are likewise stated to have yielded to it. To crown its other virtues, it is much esteemed for its supposed aphrodisiac qualities; and at Colchester, where the candied root is prepared, considerable quantities of it are still sold we are informed, in consequence of her Majesty Queen Charlotte being presented with a box of it, as she passed through that town on her first arrival in England. It is now little used by medical practitioners; but while we are taught to believe by respectable authorities that two grains, and even one, of blue pill for a dose, can act beneficially on the system, we see no reason why this root and many others should be destitute of all virtue, when properly administered and judiciously persevered in, even though their direct effects on the system manifest themselves in no very evident manner.

The *E. campestre*, or Field *Eryngo*, with deeply divided leaves, which grows naturally in our meadows and pastures adjoining the sea, is said to possess the same qualities and medical properties, and is preferred on the continent.







*Enanthe crocata:*

W. Burke del. et sculp.

London. Published by John Churchill, Leicester Square, Sept. 1827.



# ŒNANTHE CROCATA.

*Hemlock Water-dropwort.*

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*Class V. PENTANDRIA.—Order II. DIGYNIA.*

*Nat. Ord. UMBELLATÆ, Lin. UMBELLIFERÆ, Juss.*

GEN. CHAR. *Involucrum* sometimes wanting; *invollucella* of many leaves. *Flowers* radiate; *florets* in the disc, small, nearly equal, and hermaphrodite; in the circumference very large, irregular, and abortive. *Fruit* prismatic 5-ribbed.

SPEC. CHAR. *Leaflets* all wedge-shaped, nearly equal. *Fruit* linear-oblong, ribbed.

*Syn.*—Œnanthe cicutæ facie Lobelii, *Raii Syn.* 210. 3; *Park.* 894.

Œnanthe tertia, *Matth. Valgr.* v. 2. 220. *f.*

Filipendula cicutæ facie, *Ger. Em.* 1059. *f.*

Œnanthe crocata, *Lin. Sp. Pl.* 365; *Willd.* v. 1. 1441; *Fl. Brit.* 319. *Eng. Bot.* v. 33. t. 2313. *Hook. Scot.* 92; *Woodv.* v. iv. t. 267; *Stokes Bot. Mat. Med.* v. 2. 114.

PROVINCIALY.—*Hemlock Dropwort*; *Yellow Water-dropwort*; *Dead Tongue*; *Water Lovage.*

FOREIGN.—Œnanthe, *Fr.*; Enante, *Ital.*; Filipendula, *Span.*; Ræhrige Rebendole, *Ger.*

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ŒNANTHE CROCATA is decidedly one of the most active of our poisonous vegetables. When received into the stomach in any considerable quantity, it produces very violent effects on the nervous system, and speedily proves fatal. It is a tall umbelliferous plant, somewhat resembling Smallage, or Wild Celery, for which it has sometimes been mistaken. It is found growing on the sides of ditches, and on the borders of lakes and rivers, in many parts of Britain; flowering in July. It is particularly

abundant on the banks of the Thames between Greenwich and Woolwich among the reeds, growing with *Apium graveolens*, and some other aquatics; about the Red-house, Battersea; in the Isle of Dogs, and other places near London. Dr. Milne found it in the marshes about Tunbridge; by the side of the Lewisham river, beyond the water-works; in the marshy meadows between South-end and Sydenham; and betwixt Loom-pit hill and Lewisham, on the left-hand in going from New-cross, near the bridge. It is very common in some of the northern counties, and we learn from Dr. Greville, in his "*Flora Edinensis*," that it grows on the bank of a river at a place called Lasswade, near Edinburgh.

The root is thick, white, fleshy, and divided into three or four small branches, somewhat resembling the common parsnip, for which it has sometimes been mistaken. The stem, which as well as the root contains a foetid, orange-coloured juice, is round, furrowed, hollow, much branched, and rises to the height of three or four feet. The form and colour of the leaves, and indeed the general appearance and habit of the plant, have a striking resemblance to the common garden parsley. The leaves are large, bipinnate, smooth, of a deep green, with the leaflets wedge-shaped, mostly opposite, veined, irregularly cut, and sessile, or placed on very short stalks. The general umbels are large, terminal, many-rayed; the partial ones more numerous, and very short: the general, as well as partial involucre, consist of many leaves, varying in number and form. The flowers are white, or pinkish, obcordate, numerous, slightly radiating; the outermost irregular and abortive, the innermost smaller, regular, and prolific: the filaments are thread-shaped, longer than the corolla, with roundish anthers: the germen is ovate, with a slender awl-shaped style, supporting a small obtuse stigma. The fruit is oblong, ribbed, and crowned with the permanent calyx, and elongated spreading styles.—Fig. (*a*) represents a floret of the circumference; (*b*) a floret of the disc.

The scientific name *Ænanthe*, occurs in Theophrastus and Dioscorides, and is derived from *οὐνη*, the vine, and *αρθος*, a flower. Tournefort first applied it to the present genus, because



it blossoms at the same time as the vine, and because the flowers reminded him of the smell and colour of that plant. The trivial name *Crocata* was given in consequence of the yellow juice which it yields.

Wepfer has confounded this plant with his *cicuta aquatica*, and complains that Lobel has described the *cicuta aquatica* under the name of *Ænanthe Cicutæ facie, succo viroso croceo*, nine years afterwards. In the *Ephemerides Naturæ Curiosum*, he also asserts that *Stalpart Van Der Wiel* makes the same mistake; although from the descriptions of Lobel, which were very exact for the times he lived in, and from the plates of Stalpart, it is very evident that they were right. Hoffman also, in his *Medicin. Rational. Systematic.* tom. II. p. 174. edit. 4to. makes no mention of the difference. His words are, “*Ex vegetabilium regno inter præsentissima venena referri debeat cicuta vera, napellus sive aconitum cæruleum, solanum furiosum, hyosciamus, ac datura.*”

We have already observed, that both the colour and form of the leaves have a striking resemblance to parsley, and Johnson asserts, that either from ignorance, or a less excusable cause, the roots were in his time frequently sold for those of pœony; and that the women likewise, who supply the apothecaries with herbs, vended this pernicious root under the name of Water Lovage. A man has lately been imposing on the inhabitants in the vicinity of town, by selling the roots for those of the beautiful Dahlia.

QUALITIES.—The root, in which the deleterious quality is most powerfully resident, contains a juice that is at first milky, and afterwards becomes yellow. It has an acrid, unpleasant taste, and foetid smell. The other parts of the plant also yield the same kind of juice; and Mr. Erhert, a botanical artist, asserted, that while drawing the plant, the smell from it rendered him so giddy, that he was several times obliged to quit the room, and walk in the air to recover himself; but that having opened the door and windows of the room, the free air enabled him to finish his work.

POISONOUS EFFECTS.—The *Ænanthe Crocata* appears to

be the most virulent of the umbelliferous plants : for if admitted into the stomach in but a small quantity, it is instantly productive of the most violent effects : such as convulsions, frequent hic-cough, ineffectual retchings, hæmorrhage from the ears, and other violent symptoms which terminate in death : and it is very evident, from the subjoined accounts, that “it exerts an energetic local irritation, and acts powerfully on the nervous system.”

“ Eight young lads going a fishing to a brook near Clonmell, in Ireland, meeting with a parcel of Hemlock Dropwort, and mistaking their roots for those of Water Parsnep, ate a quantity of them. About four or five hours after, going home, the eldest, who was almost of man’s stature, without the least previous disorder, on a sudden fell down backwards, and lay sprawling upon the ground. His countenance soon turned very ghastly, and he foamed at the mouth. Soon after, four more were seized in the same manner ; and they all died before morning. Of the other three, one became mad, but recovered his senses next day. Another lost his hair and nails ; and the third escaped without receiving any harm—which perhaps might be occasioned by his speedy running two miles after he saw the first young man fall, together with his drinking a very large draught of milk warm from the cow, in the midway.”\*

“ M. Charles, was called in to attend a whole family that had eaten of the roots of *Oenanthe*. Momentary sensations of an arid heat, determining to the head ; a pungent burning in the epigastric region, and small rose-coloured spots of an irregular shape, extending successively ; such were the symptoms produced by the poison. These spots, which did not exceed the level of the skin, first made their appearance on the face, then on the breast, and on the arms ; the father alone had the belly swelled out like a balloon. Mucilaginous, and oily medicines, with milk, were successfully administered to them.”†

“ Three French prisoners being in the fields near the town of Pembroke, dug up a large quantity of a plant (which they took to be *wild celery*) to eat with their bread and butter, for dinner. After washing it, while yet in the fields, they all three eat, or rather only tasted of the roots.

“ As they were entering the town, one of them was seized with convulsions. The other two ran and sent a surgeon, who endeavoured first to bleed, and then vomit him, but in vain ; and he died presently. Ignorant of the cause of their comrade’s death, and of their own danger, they gave of these roots to eight other prisoners, who all eat some of them with their dinner. A few minutes after, the two who gathered the plants, were seized in the same manner as the first, of which one died. The other was bled, and an emetic with great difficulty forced down, on account of his jaws being set.

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\* Lowthorp’s Phil. Transac. abridged, vol. ii. page 641.

† Annales Chimiques de Montpellier, No. 134.



This operating he recovered; but was some time much affected with dizziness in his head, though not sick, or in the least disordered in his stomach. The other eight being bled, and vomited immediately, were soon well.

“What they eat was *Æ. Aquatica cicutæ facie* of Lobelius, which grows in plenty all over this country, and is called by the inhabitants, five-fingered root, and is much used by them in cataplasms for the felon, or worst kind of whitlow. They eat only the root, and none of the leaves or stalk.”—*Gentleman's Mag.* 1747, p. 321.

“Stalpart Van Der Weil, in his Observations, takes notice of the deadly effects to two persons, who had eaten these roots, mistaking them for Macedonian parsley. Soon after eating the roots, they were troubled with violent heats in the throat and stomach, and purging. One of them bled at the nose; the other was violently convulsed. Both of them died; one in two hours, the other in three.”

“The dead bodies of three unfortunate Belgians, belonging to the 82nd Demi-brigade, were brought to the principal naval hospital at Brest. They had been deceived by the resemblance which the root of *Ænanthe crocata* bore to one made use of in their own country, and ate a great quantity of it. Its sweetish flavour pleased their palates and contributed to the keeping up of their error. They very soon experienced a general uneasiness, nausea, vertigoes, and vomitings. To these symptoms succeeded convulsions, and with such rapidity, that they sunk under them in less than half an hour, and before any assistance was given:”—

MORBID APPEARANCES OF THESE MEN.—Nothing remarkable on the exterior surface of the body. One of these bodies was preserved for four days, and at the end of that time no sign of putrefaction was observed: the brain and its membranes were sound, the lungs distended; their vessels full of black and dissolved blood. On the bronchiæ, trachea, and mouth, was found a frothy and whitish fluid. The lungs in one of these bodies presented on their external surface some petechiæ; the cavities of the two circulatory systems empty; the heart sound. The stomach contracted, and inflamed at its extremity (pyloric?) and lesser curvature; its coats thickened: the intestines puffed up, and their vessels injected; the venous and arterial systems distended with a fluid of the same nature, dissolved and blackish: the derangements were precisely the same in all three.\*

Further accounts of this dreadful poison may be found in Vanderwiel's *Observationum Pariorum, &c. tom. 1, p. 182.* In *Philosophical Transactions, p. 836, Anno 1758.* In Dr. Allan's *Synopsis Medicinæ*; and Boerhaave's *Historia Plantarum; Lug. Bat. p. 79.*

TREATMENT.—See article *Helleborus niger*, No. XI.

USES.—Few practitioners now venture to prescribe the use of

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\* Duval's Dissertation Inaugurale.

this plant; but it is said that an infusion of the leaves, or three tea-spoonsful of the juice have been successfully administered for some obstinate cutaneous diseases, particularly for lepra and ichthyosis. Dr. Hope, the father of the present able Professor of Chemistry in the University of Edinburgh, found an infusion of the leaves highly useful in promoting the menstrual discharge. In Westmoreland, the country people apply a cataplasm of the herb to the ulcer which forms in the fore-part of the hoof in horned cattle, and is called "*foul*." It sometimes proves diuretic; but its real powers, as a remedial agent, are as yet imperfectly understood.

We learn from Sir James Edward Smith, in his "*English Flora*," on the authority of Sir Thomas Frankland, that brood-mares sometimes eat the root and are poisoned by it.







*Daucus Carota.*

*Carota vulgaris*



## DAUCUS CAROTA.

*Wild Carrot.*

Class V. PENTANDRIA.—Order II. DIGYNIA.

Nat. Ord. UMBELLATÆ, Lin. UMBELLIFERÆ, Juss.

GEN. CHAR. “*Fruit* elliptic-oblong, compressed transversely. *Seeds* with 4 rows of flat prickles, and rough intermediate ribs. *Calyx* obsolete. *Petals* inversely heart-shaped, unequal. *Flowers* separated.”

SPEC. CHAR. *Stem* bristly. *Leaves* tripinnate; *leaflets* pinnatifid, with linear-lanceolate acute segments. *Involucre* nearly as long as the rays of the umbel. *Fruit* bristly.

Syn.—*Daucus vulgaris*, *Raii Syn.* 218; *Clus. Hist. v. 2.* 198.

*Daucus. n.* 746, *Hall. Hist. v. 1.* 326.

*Pastinaca sylvestris tenuifolia*, *Ger. Em.* 1028. 1.; *Park.* 902.

*Staphylinus*, *Rivin. Pentap. Irr. t.* 28.

*Caucalis Carota*, *Hud. Fl. Ang.* 114.; *Stoke's Bot. Mat. Med. v. 2.* 64.

*Pastinaca erratica*, *Fuch's Hist.* 684. *f.*

*Daucus Carota*, *Lin. Sp. Pl.* 348.; *Willd. v. 1.* 1389.; *Fl. Brit.* 300; *Eng.*

*Bot. v. 17. t.* 1174; *Woodv. t.* 161.; *Mart. Rust. t.* 82; *Hook. Scot.* 88.

PROVINCIALY.—*Wild Carrot. Bird's Nest. Bee's Nest.*

FOREIGN.—*Carotte*, Fr.; *Carola*, It.; *Zanahoria*, Sp.; *Karotte*; *Mohrriibe* Ger.; *Gajer*, Hind.

IN its wild state, the Carrot is a common weed in this country, growing by road sides, especially in a gravelly or chalky soil; and is known by the name of *Bird's-nest*, from the appearance of the umbels as they approach maturity. It is a biennial plant, flowering in June, and July, and ripening its seeds in September.

The root of the Wild Carrot is slender, dry, somewhat woody, of a yellowish colour, and aromatic. The root of the Garden Carrot, which is reckoned only a variety, is succulent, commonly of a yellow or an orange colour, and is universally known as an article of domestic economy. The stem of the wild sort is about two feet high, erect, furrowed, branched, and hairy. The leaves are alternate, on broad footstalks, bipinnate, of a dark green colour, and hairy, especially beneath. The umbels, which terminate the long leafless branches, are solitary, large, and as they approach maturity, the external rays become incurved, which renders the inner surface of the umbel concave like a bird's-nest. Both umbels are many-rayed, and consist of flowers that are small, and generally white, except the abortive ones in the centre of the umbel, where they have a purple or reddish hue. The general involucre is composed of many-winged, or pinnatifid leaves, shorter than the umbel; the partial ones undivided, or sometimes 3-cleft. The petals are unequal, radiate, and obcordate. The seeds are in pairs, ovate, and rough, with rigid bristles.—Fig. (*a.*) a floret somewhat magnified, to show the stamens, and a single ray of the umbel, with the involucre; (*b.*) a seed.

The Carrot is supposed to be the *σταφυρινος ἀγριος* of Dioscorides; and Pliny, in speaking of it, book xxv. c. 9, says, that the finest kinds were, in his days, those of Candia and Achaia. Celsus refers also to the seeds of another species of Carrot, as an ingredient in the celebrated Mithridate, that secured the body against the effects of poison.

It is generally allowed that the cultivated Carrot is a variety of the wild; but although Miller endeavoured to improve the latter kind, by growing it in different soils, he was never able to effect his purpose: it is therefore probable that we are indebted for our delicious vegetable to an accidental growth of seed, or to a foreign supply; Carrots having been used in the reign of Elizabeth, at which time the utility of gardens was just beginning to be felt, and their stock supplied from abroad. They are cultivated in the Mahratta, and Mysore countries, where they are very fine, and much eaten by the inhabitants.



CULTURE.—“Several varieties,” says Mr. Patrick Neill, “are cultivated, particularly the orange carrot, with a large long root of an orange-yellow colour; the early horn and the late horn carrot, of both which the roots are short and comparatively small; and the red or field carrot, which acquires a large size.

“Carrots are sown at two or three different seasons. The first sowing is made as early perhaps as new year’s day, or at any rate before the first of February, on a warm border or in front of a hothouse. Some employ a gentle hotbed for this first crop; while others only hoop over the border, and cover it with mats during frost. The main crop of carrots is put in, in March or April; and in June or July a small bed is sown to afford young carrots in the autumn months. In some places a sowing is made a month later, to remain over winter, and afford young carrots in the following spring. These, however, often prove stringy, but they are useful in flavouring soups. In light early soils, it is better that the principal crop should not be sown sooner than the end of April or beginning of May; for in this way the attacks of many larvæ are avoided. For the early crops the horn carrot is best; for the principal crops, the orange variety is preferred, but the red is also much cultivated.

“The seeds having many forked hairs on their borders, by which they adhere together, are rubbed between the hands with some dry sand, so as to separate them. On account of their lightness, a calm day must be chosen for sowing; and the seeds should be trod in before raking. They are sown either at broadcast, or in drills a foot apart. When the plants come up, several successive hoeings are given; at first with a three inch, and latterly with a six inch hoe. The plants are thinned out, either by drawing young carrots for use, or by hoeing, till they stand eight or ten inches from each other, if sown by broadcast, or six or seven inches in line. The hoeing is either performed only in showery weather, or a watering is regularly given after the operation, in order to settle the earth about the roots of the plants left.

“Carrots thrive best in light ground, with a mixture of sand. It should be delved very deep, or even trenched, and at the same

time well broken with the spade. If the soil be naturally shallow, the late horn carrot is to be preferred to the orange or red. When manure is added to carrot ground, it should be buried deep, so that the roots may not reach it, else they are apt to become forked and diseased. In general it is best to make carrots the second crop after manuring. From the Scottish Horticultural Memoirs, however, (vol. i. p. 129,) we learn, that pigeons dung, one of the hottest manures, far from injuring carrots, promotes their health, by preventing the attacks of various larvæ.

“ Carrots are taken up at the approach of winter, cleaned and stored among sand. They may be built very firm, by laying them heads and tails alternately, and packing with sand. In this way, if frost be excluded from the storehouse, they keep perfectly well till March or April of the following year. Some persons insist that the tops should be entirely cut off at the time of storing, so as effectually to prevent their growing; while others wish to preserve the capability of vegetation though certainly not to encourage the tendency to grow.

“ From old Parkinson we learn, that carrot leaves were in his day thought so ornamental that ladies wore them in place of feathers. It must be confessed that the leaves are beautiful. If during winter a large root be cut over about three or four inches from the top, and be placed in a shallow vessel with water, over the chimney-piece, young and delicate leaves unfold themselves all around, producing a very pretty appearance, enhanced no doubt by the general deadness of that season of the year.”

QUALITIES AND CHEMICAL PROPERTIES.—The seeds of the wild carrot are aromatic, both in taste and odour. Water digested on them becomes impregnated with the latter quality, but it extracts but little of their taste. They yield a yellowish essential oil, and give out all their virtues to spirit. M. Bracot has recently discovered a new acid, named *pectic* acid, which is universally diffused in all vegetables. The following is the method of preparing pectic acid from *carrots*:—The roots being well washed, are reduced to a pulp by means of a grater. The juice is pressed out, and the grounds repeatedly washed with filtered rain-water, till the water passes out colourless.



With these grounds, and a certain quantity of water, a semi-liquid pap is made, into which is stirred a solution of potash or soda of commerce, rendered caustic, in quantity sufficient to maintain in the liquor, till the end of the operation, a slight excess of alkali, perceptible to the taste. The mixture is immediately exposed to heat, and made to boil, till, on taking out with a tube a portion of the thick resulting liquor, it coagulates entirely into a jelly with an acid. The boiling liquor is then strained through linen. The mass is washed with rain-water, containing no sulphate of lime, and the liquors, which are thick and mucilaginous, are added together, and will form into a jelly, if allowed to cool. The solution of this pectate is decomposed with a little muriate of lime, diluted with a great deal of water. By this means, we obtain an extremely abundant transparent jelly of insoluble pectate of lime, which it is easy to wash well upon a linen cloth. This combination is boiled for some minutes with water, acidulated by a little muriatic acid, which dissolves the lime with the starch. The whole is afterwards thrown upon a linen cloth, and the pectic acid is obtained, and may be washed with the greatest facility with pure water.

The proportions of the ingredients are 50 parts of carrots, 300 parts of water, and one part of potass. Pectic acid in jelly liquifies with extreme facility on the effusion of a few drops of ammonia. The solution, evaporated to dryness, gives a residue, a sub-pectate of ammonia, which swells up extremely in distilled water, dissolves in it, and thickens a great quantity of that liquid.

It is remarkable how small a quantity of this salt can communicate to great quantities of sugared water, the property of gelatinizing. M. Braconot dissolved, in a quantity of warm water, one part of this salt, produced from the root of the turnip. He dissolved some sugar in the liquor, and then added an infinitely small quantity of the acid ; a moment after, the whole had formed into a mass of trembling jelly, of the weight of three hundred parts. The inventor has prepared, by these means, aromatised jellies, perfectly transparent and colourless, very agreeable to the taste and to the eye. This acid is also obtained

from fruits, and may be used in the preparation of jellies. When it is wished, for example, to make a lemon jelly, one part of the acid in jelly, well drained, is mixed with three parts of distilled water; and to these, a small quantity of a dilute solution of pure potash and soda is added, till the acid is dissolved and saturated. This solution is exposed to heat, and three parts of sugar are dissolved in it, a small portion of sugar being previously rubbed on the rind of a lemon. A small quantity of very diluted muriatic or sulphuric acid is added to the liquor to decompose the pectate; the mixture being agitated, acquires consistency, and forms into a jelly a short time afterward.

One of the most valuable properties that the author has discovered in the soluble pectates is, that they may be considered as the most certain antidotes in cases of poisoning by the metallic salts, with the exception of corrosive sublimate, nitrate of silver, and emetic tartar.

**MEDICAL PROPERTIES AND USES.**—The seeds of Carrot are carminative and somewhat diuretic; and by Schroder, and others, have been recommended for obstructed menses, flatulent cholick, hiccough, dysentery, chronic coughs, gravel, &c. Cullen found them of no efficacy in the latter disease, and they appear to be of little use, excepting as correctors of flatulency. Dr. Ainslie, in his elaborate work, informs us that the Arabians place the root of the Carrot amongst their (*Mobehyet Aphrodisiaca*,) a proof that they never could have supposed them to be indigestible; which they certainly are not, if they be young, and *well* boiled. Bergius informs us that the expressed and inspissated juice is sweet, approaching to the nature of honey, but not crystallizable: and Marggraf recommends recent roots to be cut, well washed, and beaten into a pulp; the juice of which is to be expressed through a sieve, and inspissated to the consistence of honey, when it may be used at table instead of sugar, and will be found a useful remedy for infantile and consumptive coughs, and for worms. The root, beaten into a pulp, forms an excellent antiseptic poultice for cancerous and ill-conditioned sores, especially when combined with hemlock. The dose of the bruised seed is from ℥i. to ʒi. or more.







*Conium maculatum* L.



## XIII

### CONIUM MACULATUM.

*Common, Greater, or Spotted Hemlock.*

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*Class V. PENTANDRIA.—Ord. II. DIGYNIA.*

*Nat. Ord. UMBELLATÆ, Lin. UMBELLIFERÆ, Juss.*

GEN. CHAR. *Involucella* 3-leaved, all on one side.  
*Petals* cordate. *Fruit* nearly globular, 5-ribbed  
and furrowed; the *ribs* crenulate.

SPEC. CHAR. *Stem* much branched, smooth, and  
spotted. *Leaves* tripinnate.

*Syn.—Cicuta. Raii. Syn.* 215. 1; *Ger. Em.* 1061, 1; *Camer. Epit.* 839. f.

*Cicuta vulgaris major. Park. Theatr.* 933.

*Conium. n.* 766. *Hall. Hist.* v. 1. 337.

*Conium major. Bauh. Pin.* 160. *Moris. v.* 3. 290.

*Coriandrum cicuta. Crantz. Austr. fasc.* 3. 100.

*Coriandrum maculatum. Roth Germ. v.* 1. 130. v. 2. p. 1. 348.

*Conium maculatum. Lin. Sp. Pl.* 349; *Wild. v.* 1. 1395; *Fl. Brit.* 302;  
*Hook. Fl. Scot.* 88.

FOREIGN.—*Grand Cigue*, Fr.; *Cicuta Maggiore*, Ital.; *Conio manchado*,  
Ital.; *Schierling*, Ger.

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COMMON SPOTTED HEMLOCK, or as it is termed in our Dispensatories, *Conium*, is a tall umbelliferous biennial plant, indigenous to Britain; growing wild in almost every climate, and with us, is found by road-sides, in hedges and waste places; flowering in June and July.

The root is fusiform, resembling that of the common garden parsnip; of a yellowish-white colour externally, and white and fleshy within. The stem, which rises from two to five feet high, is herbaceous, erect, round, hollow, much branched, polished, and

variegated with spots and streaks of a reddish purple. The leaves much resemble parsley or chervil, a circumstance which has sometimes given rise to fatal accidents. The lower ones are large, spreading, and repeatedly compound; the upper ones are bipinnate; the whole stand on long furrowed footstalks; the leaflets are ovate, sharply serrate, of a deep shining green colour on the upper side, and a whitish green underneath. The umbels are terminal, compound, and many rayed. The general involucre consists of several short, unequal, lanceolate leaves; the partial ones generally of three leaflets, which only half encompass the umbel. The flowers are small, and very numerous; the petals white, the outer ones somewhat irregular, inflexed, and heart-shaped. The stamens are capillary, with roundish anthers. The germen is situated under the flower, supporting two reflexed styles, and obtuse stigmata. The fruit is ovate, with ten prominent acute ribs; the seeds half-ovate, each with five ribs, and notched on either side.—Fig. (a) represents the root with part of the stem; (b) a perfect flower magnified; (c) the pistil; (d) the fruit, also magnified.

Hemlock is not unfrequently mistaken by herb-gatherers, and even by medical men, ignorant of Botany, for other plants of the same tribe—most commonly for Wild Cicely, (*Chærophylum sylvestre*), which it very much resembles. By a little attention to the characters, the plants may readily be distinguished. Thus in *C. sylvestre* the stem is furrowed, without spots, and hairy; in Hemlock it is smooth, and irregularly studded with purplish spots. The latter too has a broadish reflexed *involucre*, consisting of from three to seven leaves, under both the universal and partial umbels; petals bifid; and seeds that are striated and beautifully notched on the edges; whilst in the former the partial involucre only is present, the petals are entire, and the seeds are not striated. The characters which discriminate *CICUTA* from the Lesser Hemlock, or Fool's Parsley, have been already fully pointed out under the article *ÆTHUSA*.

A plant, bearing the name of *χωνειον*, was celebrated amongst the ancients, as a violent poison; and those who were condemned to death by the tribunal of Areopagus, were poisoned by the juice



of a species of hemlock. Theramenes, one of the thirty, and Phocion, suffered publicly from its effects : and Socrates, whose disciple he had been, and who was the only senator who ventured to appear in his defence, not only immortalized himself by his talents, wisdom, and virtues ; but, by his own death, has conferred a notoriety on CONIUM, which time will never efface. The account of his death, as narrated in the *Phædon* of Plato, we subjoin : \* and while it affects the mind by its tender touches, and by a consideration of the blind and delusive impulses, which can stimulate a popular faction to a fatal deed, the consequences of which were unseen, till the glory of the Athenians was disappearing, it appears that the symptoms which the poison produced, do not exactly correspond to those we look for, from the *Conium maculatum* of Europe : but we must re-

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\* “ And Crito hearing this, gave the sign to the boy who stood near. And the boy departing, after some time returned, bringing with him the man who was to administer the poison, who brought it ready bruised in a cup. And Socrates beholding the man, said, ‘ Good friend, come hither ; you are experienced in these affairs,—what is to be done ? ’ ‘ Nothing,’ replied the man, ‘ only when you have drank the poison, you are to walk about until a heaviness takes place in your legs ; then lie down : this is all you have to do.’ At the same time he presented him the cup. Socrates received it from him with great calmness, without fear or change of countenance, and regarding the man with his usual stern aspect, he asked, ‘ What say you of this potion ? Is it lawful to sprinkle any portion of it on the earth as a libation, or not ? ’ ‘ We only bruise,’ said the man, ‘ as much as is barely sufficient for the purpose.’ ‘ I understand you,’ said Socrates, ‘ but it is certainly lawful and proper to pray the gods that my departure from hence may be prosperous and happy, which I indeed beseech them to grant.’ So saying, he carried the cup to his mouth, and drank it with great promptness and facility.

“ Thus far most of us had been able to refrain from weeping. But when we saw that he was drinking, and actually had drunk the poison, we could no longer restrain our tears. And from me they broke forth with such violence, that I covered my face and deplored my wretchedness. I did not weep for his fate, so much as for the loss of a friend and benefactor, which I was about to sustain. But Crito, unable to restrain his tears, was compelled to rise. And Apollodorus, who had been incessantly weeping, now broke forth into loud lamentations, which infected all who were present except Socrates. But he, observing us, exclaimed, ‘ What is it you do, my excellent friends ? I have sent away the women that they might not betray such weakness. I have heard that it is our duty to die cheerfully, and with expressions of joy and praise. Be silent therefore, and let your fortitude be seen.’ At this address we blushed, and suppressed our tears. But Socrates, after walking about, now told us that his legs were beginning to grow heavy, and immediately laid down, for so he had been ordered. At the same time the man who had given him the poison, examined his feet and legs, touching them at intervals. At length he pressed violently upon his foot, and asked if he felt it. To which Socrates replied, that he did not. The man then pressed his legs and so on, shewing us that he was becoming cold and stiff. And Socrates feeling of himself, assured us, that when the effects had descended to his heart, he should then be gone. And now the middle of his body growing cold, he threw aside his clothes, and spoke for the last time. ‘ Crito, we owe the sacrifice of a cock to Æsculapius. Discharge this, and neglect it not.’ ‘ It shall be done,’ said Crito ; ‘ have you any thing else to say ? ’ He made no reply, but a moment after moved, and his eyes became fixed. And Crito seeing this, closed his eyelids and mouth.”

member that the historian is not a physician from whom to expect a scientific or modern description; “that the idiosyncrasies of different individuals render them variously susceptible of the action of hemlock;” and that all narcotic plants exert very different effects when administered to the natives of warm climates, than when they are given either to the weak, or the robust, of our northern soil.

The description of the plant given by Dioscorides, only proves it to have been one of the *umbelliferae*, his character of which, may be applied to many species: and the references to it by Latin writers, amongst whom are Persius,\* Virgil, Lucretius, and Pliny, under the name of *Cicuta*, reflect no light on the subject.

Ælian states that when the Cean old men had become useless to the state, and tired of the infirmities of life, they invited each other to a banquet, and having crowned themselves as in celebration of a joyous festival, drank the poisonous juice, and terminated their existences together. Linneus, Lamarck, and others, believed the *Conium maculatum* to be the plant used by the Grecians; others suppose that the fatal draught was compounded from different herbs; and Haller considers it to have been derived from the *Cicuta virosa*, a poisonous aquatic, which in its operation is much more powerful and violent than the common hemlock. To pursue the question is more interesting than useful; but it appears that the juice recently expressed, was the form of administering the poison; and that the draught taken by Phocion was large enough to cost twelve *drachmæ*: a fact, the knowledge of which defies our award to the particular species of hemlock, and gives fresh energy to our suppositions.

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\* Rem populi tractas? (*Barbatum hæc crede Magistrum,  
Dicere, Sorbitio tollit, quem dira Cicuta.*)

Quo fretus? dic hoc, magne Pupille *Pericli.*

*Sat.* 4.

. . . Quo deinde, insane, ruis? Quo?

Quid Tibi vis? calido sub pectore, mascula Bilis

Intumuit, quam neu extinxerit Urna *Cicuta.*

*Sat.* 5. c. v. 142.

Quippè videre licet pinguescere sæpè cicuta

Barbigeras pecudes, homini quæ est acre venenum.

*Lib.* 5. v. 897.



QUALITIES AND CHEMICAL PROPERTIES.—The leaves of hemlock, when fresh and bruised, have a strong taste and an odour which has been compared to that of the urine of a cat : when dried they are not so disagreeable, but still possess a heavy narcotic smell. Their taste is slightly bitter and nauseous. Dr. Bigelow found, that if the green leaves are distilled, the water which collects in the receiver has an insupportably nauseous taste, while that remaining in the retort is comparatively insipid.

The acrimonious principle only is lost in drying : the narcotic remaining if the operation be carefully performed. Schrader, from a thousand grains of the plant, obtained, extractive 27.3 ; gummy extract 35.2 ; resin 1.5 ; albumen 3.1 ; green fæcula 8 : he also detected various earthy and alkaline salts, which are found to vary according to the soil in which the plant grows. The volatile portion which has been obtained in water distilled from the leaves, did not exhibit any essential oil, and effected no change in the colour of litmus. It was not altered by sulphate of iron, nor acetate of lead. The virtues of Conium are extracted by alcohol, and sulphuric æther ; to the latter it communicates a very deep green colour ; and Dr. Thomson discovered that when the tincture is evaporated on the surface of water, a rich dark green resin remains, in which the narcotic principle of the plant appears to reside ; in doses of half a grain it produces headache, and slight vertigo ; and has received the name of *conein*. Respecting the qualities of the root, the most discordant sentiments prevail ; some avowing that it is highly deleterious, while others aver, that it may be eaten with impunity. It is well known that the root of *Colchicum autumnale*, the most active poison at one season of the year, is perfectly inert at others : these effects are of course regulated by the time of flowering, and depend on other processes in the growth of the plant which nature is producing—circumstances, which probably apply to the roots of hemlock.

Störck\*, without adverting to the season of the year in which

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\* Radix recens dum in taleolas discinditur, fundit lac, quod gustu amarum et acre est. Hujus lactis unam alteramve guttulam linguæ apice delibavi. Mox lingua facta est rigida, intumuit, valde doluit, et ego nec verbum loqui poteram. (Störck. *De Cicuta*. F. 9.)

he obtained it, states that the sliced root yielded a bitter and acrid juice, a drop or two of which applied to his tongue, rendered it painful, rigid, and so much swelled, that he could not speak. This account we find it difficult to reconcile with our own experience, and that of many others;\* for having gathered a considerable quantity of the root in March, we ascertained, contrary to our expectation, that its odour was not so strong as that of the few leaves which were springing from it; and after chewing a drachm, we could discover no acrid power, and the taste, instead of being bitter, was sweet, and much resembled the flavour of a raw parsnip. Mr. Alchorne asserted, that he had tasted the root in every season of the year, and from most parts of our island, without finding any material difference, and that he had been informed both in Berlin and Vienna, that the roots are there no more violent than in England. A Mr. Lane,† also, eat a considerable part of the root without inconvenience; and after that, he had some boiled, and found them as agreeable as carrots, which they resembled somewhat in taste. He has eaten them at all seasons, and from different places; some were more pungent than others, but not in a degree worthy of notice. According to Linneus, sheep eat the leaves, while horses and cows refuse them. He also states that goats refuse them, which we believe to be incorrect. The thrush, according to Ray, eats the seeds; an extract from which is said to be more powerful than that from the leaves.

**POISONOUS EFFECTS.**—An overdose of hemlock produces all the symptoms of narcotic poisons, such as sickness, vertigo, delirium, dilatation of the pupils, great anxiety, stupor, and convulsions. We are indebted to M. Orfila for the following account:

On the 23rd of April, at one o'clock, a small dog was made to swallow an ounce and a half of the *fresh root* of *Conium maculatum*: the œsophagus was tied. Forty-eight hours after, he had experienced no bad effects. On the 25th, at noon, he was only somewhat dejected,

M. Agasson speaks of a man who had taken hemlock, and who had

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\* Orfila, in his concluding remarks, and after many experiments, states, "that the fresh leaves of hemlock furnish, at a certain period, a juice which possesses energetic poisonous properties; and that, that which is obtained from the roots at the same time, possesses little activity."

† Curtis' *Flora Londinensis*.



all the upper parts of the body affected by convulsions, whilst the lower extremities were paralysed. A furious delirium has sometimes been observed in other persons: thus, according to Vicat, p. 274, an Italian who cultivated vines in his own country, found amongst them a plant of this kind, which he took for a parsnip; he ate part of *the root* for his supper, and gave the rest to his wife; after which they went to bed. In the middle of the night they awoke completely delirious, and began running here and there without a light over the whole house, in a fit of madness and fury; they struck themselves so rudely against the wall, that they were bruised all over, and their faces particularly, and eyebrows, appeared swelled and bloody: suitable medicines were administered to them, and they were restored to health.

In the year 1822, a grenadier in garrison at Torrequemada, in Spain, partook of some broth into which hemlock had been put, and died in three hours. On dissection, the stomach was half filled with crude broth; there were round the pylorus, some red spots; the liver was very voluminous; there was no alteration in the intestines; the *vena cava* and the heart were emptied of blood; the pectoral cavity was narrow, and the left lobe of the lungs was sound, but the right one was entirely destroyed by a preceding suppuration. On opening the cranium, there flowed out a sufficient quantity of blood to fill two ordinary sized chamber utensils: the vessels of the brain were extremely gorged with blood. \*

TREATMENT.—See *Art. BELLADONNA*, No. I.

MEDICAL PROPERTIES AND USES.—The use of hemlock was principally confined to external applications, till it was introduced by Störck, as an internal remedy for scirrhus, cancer, and a host too numerous to mention of other chronic affections. The encomiums he bestowed upon it led to its universal adoption; but time and experience have proved, that however benignly it occasionally acts, when first administered, we are not warranted in attributing virtues to it, of so conspicuous and valuable a nature. That in cancerous ulcerations the pain sometimes abates, and the discharges assume a less acrid character, will be readily admitted; but these effects are only temporary; and conium is now merely viewed as a valuable palliative. On painful sores of a scrofulous kind; on ulcers which remain in many irritable constitutions after the use of mercury; on some malignant sores, especially such as are met with on the tongue; on indurations of the breasts and of the testes; it frequently exerts a most salutary power; it also allays morbid irritability of the system, and is given with marked advantage in pertussis or whooping cough, and in those pulmonary diseases which fre-

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\* *Journal de Médecine*, v. 28, p. 107.

quently follow inflammation of the thoracic cavity. Chronic rheumatism also, and anomalous pains of the muscles, are often benefited by its use.

Rosenstein in Sweden ; President Fisher and Prof. Jackson, in America, have found its relaxing effect to facilitate the passage of biliary calculi : and Bigelow confirms their accounts of its very beneficial efficacy in jaundice. Bergius extols it in impotency. Fothergill, in our own country, and Chaussier and Dumeril in France, have found it successful in tic doloieux. Dr. Jackson, who has published several cases in the *New England Journal*, vol. ii. in which perfect relief was afforded to this disease, recommends “ to begin with a single grain of the extract, and to increase to five grains for the second or third dose : afterwards to add five grains to every dose till a full effect is felt on the system.” It has also been of great use in some cases of hemicrania, which are not regularly intermittent : and the bruised plant, or decoction of it, is sometimes applied as a fomentation to ulcerated surfaces, or as a cataplasm by adding linseed meal.

To avoid disappointment from its effects, which so frequently occurs, the plant must be gathered in June, just as it commences flowering. The leaflets should then be plucked from the footstalks, which are to be thrown away ; and the former, after being carefully dried in the sun, or in a stove, very moderately heated, may be preserved in sealed paper, and firmly pressed into a box, from which both air and light are to be excluded if possible. The powder, the best manner of administering it, may be kept for years in an opaque closely-stopped phial. The extract can scarcely ever be relied on, from the carelessness observed in its manufacture : we therefore recommend our readers to practise Mr. Houlton’s plan, which consists in submitting the expressed juice to the atmosphere, in shallow vessels ; whereby spontaneous evaporation is produced ; and a preparation obtained, containing all the virtues of the recent plant.

**DOSE.**—In powder, gr. ij. gradually increased to ʒj. ; or from gtt. xij. to lx. of the expressed juice.

**OFF. PREP.**—*Extractum Conii*, L. E. D.

*Tinctura Conii*, E. D.







*Ferula persica.*

G. Reid. del.

W. & A. 50



CLXIX

FERULA PERSICA.

*Persian Fennel-Giant.*

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*Class V. PENTANDRIA.—Order II. DIGYNIA.*

*Nat. Ord. UMBELLATÆ, Lin. UMBELLIFERÆ, Juss.*

GEN. CHAR. *Fruit* oval, compressed, with three ribs on each side. *Calyx* obsolete. *General involucrum* deciduous. *Flowers* uniform, all fertile.

SPEC. CHAR. *Leaflets* many-cleft, acute, decurrent. *Primary umbel* sessile.

*Syn.—Assa foetida. Hope in Phil. Trans. v. 75, t. 34.*

*Ferula persica. Willd. Sp. Pl. v. 1. 1413; Ait. Kew. v. 2. p. 136; Bot. Mag. v. 46. t. 2096; Andrew's Reposit. 558; Pers. Syn. 1. p. 312.*

*Persiches Sekenkraut. Nom. Triv. Willd.*

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ABOUT sixty years ago, seeds of this species of *Ferula* were sent to Pallas from the mountains of Ghilan in Persia, supposed to be those of the plant producing the assafoetida. From these, several plants were raised by the Professor at St. Petersburg, and two of them were sent by Dr. Guthrie to the late Dr. John Hope, Professor of Botany in the University of Edinburgh. Both these roots were planted in the open air in the Botanic Garden there, but one of them died; the other did well, and produced seed, and from this source, as Dr. Sims rightly conjectures, sprung the plant in the garden of the Apothecaries' Company at Chelsea, from which the figure in the Botanical Magazine, and that which embellishes our work, was made.

Though this is not the plant described by Kœmpfer as yielding the officinal assafoetida, it seems probable that there are

various species which afford a gum to which the name of assafoetida has been applied, but that the plant mentioned by this author is the one in which it exists in the greatest degree, or at least, which is usually employed for medicinal purposes. That the *Ferula persica* produces assafoetida seems confirmed by the strong smell of that drug which pervades the whole herb; and Dr. Sims informs us that he has collected small globules of true assafoetida that had exuded from the stem. The gum resin, known in the shops under the name of Sagapenum, which is brought to this country from Alexandria, is supposed by Willdenow to be the produce of the *Ferula persica*. It is, indeed, mentioned by Dioscorides as the concrete juice of a species of *Ferula*, but of what particular species, without authentic materials, it is impossible for botanists to decide.

The *Ferula persica* is a hardy plant with a perennial root and annual stems. With us it rises with an erect, round, smooth, slightly striated stem, having only one pair of imperfect leaves about the middle, to the height of three feet. It is described by Dr. Hope as having branches that are naked and spreading; the three lower ones alternate, and supported by the concave membranaceous petiole of the imperfect leaf, the upper ones in whorls; all of them supporting a many-rayed, sessile, plano-convex, terminal umbel, besides from three to six branchlets placed on the outside, bearing compound umbels. The stem is surrounded at the base with six radical leaves, somewhat glaucous, which are petioled, spreading, 3-lobed, ovate, many times pinnate; with incised, acute, decurrent leaflets, of a deep green colour. The footstalks of the lower leaves are flat above, with a raised line running longitudinally through the middle of them. The umbels have from twenty to thirty general spreading rays, and from ten to twenty partial ones, with subsessile florets. The florets of the sessile umbels are fertile; of the peduncled umbel mostly abortive. The petals are yellow, equal, flat, ovate, at first spreading, but afterwards reflexed with the tip ascending. The filaments are awl-shaped, longer than the corolla, curved inwards, and bearing roundish anthers. The germen is inferior,



turbinate, with two reflexed styles, and an obtuse stigma. The fruit is oval, compressed, marked with three distinct ribs, separable into two parts. Every part of the plant abounds with a milky juice, having the odour and taste of assafœtida.

In Persia, when the stem and leaves begin to decay, the top of the root is cut off transversely, and the juice, after it exudes, is scraped off, and inspissated by exposure to the sun. The plant grows chiefly on the mountains in the provinces of Chorrassan and Laar, where it is named *hingisch*. It receives so great an alteration from the nature of the soil, on which it grows, that, according to Kœmpfer, at a small distance from the places above-mentioned, the juice is not worth collecting, being either exceedingly small in quantity, or entirely void of its foetid smell. The plant is even reported to become so mild, not far from Disguun, that the goats greedily browse upon the leaves, and become surprisingly fat.\*

QUALITIES AND CHEMICAL PROPERTIES—This gum-resin is in irregular masses, composed of agglutinated pieces, which vary in colour from white to pink, and even a dark brown. Its odour is alliaceous, and extremely foetid; it is, therefore, sometimes called *stercus diaboli*. It is with difficulty that it can be powdered, unless triturated with carbonate of ammonia. Its specific gravity is 1.327. It yields its virtues to alcohol and ether, and diffused in water by trituration, forms a milky opaque fluid.

To Pelletier it furnished by analysis ;

Resin	.	.	.	.	.	65
Gum	.	.	.	.	.	19.44
Bassorine	.	.	.	.	.	11.66
Volatile oil	.	.	.	.	.	3.60
Malate of lime	.	.	.	.	(traces)	
Loss	.	.	.	.	.	3.30
						<hr/> 100

\* For a full and highly interesting account of the mode of collecting and preparing Assafœtida, see *Amœnitates Academicæ*, p. 535.

To Brandes,		
Resin	.	472
Gum	.	194
Volatile oil	.	46
Resinous substance	.	16
Tragacanth! (Cerasin?)	.	64
Extractive, with malate of lime	.	10
Sulphate of lime, with traces of potass	.	62
Oxide of iron	}	4
Water		
Phosphorus	.	(traces)
Acitrate, malate, sulphate, and phosphate of potass and lime	.	(traces)
Impurities	.	46
		—974

**MEDICAL PROPERTIES AND USES.**—Assafoetida is employed as a powerful antispasmodic, being preferred for its quickness of operation, and efficiency, to any of the gum-resins. It is found useful in many nervous diseases, especially in hysteria, flatulent cholic, and tympanites. In dyspepsia, attended with flatulence, and in dyspnœa, it is very efficacious. Amenorrhœa is also benefited by it, and in the chronic coughs of old people, in asthma and pertussis, its expectorant properties render it serviceable. In India it is used by the natives as a specific for the Guinea-worm, and diffused in water is efficaciously injected for the convulsions of infants, and to destroy the parasites which infest the rectum. It is occasionally combined with antimonials and nitre to counteract its stimulant properties, and is given in substance in doses of from five grains to a scruple, in the form of pills. Formed into an emulsion, it is a nauseous compound, suited to few stomachs. Occasionally, it is employed as a discutient plaster.

*Sagapenum* is considered by European practitioners to be antispasmodic and emmenagogue. It is seldom employed, excepting as a substitute for assafoetida, when it is given in substance, in doses of from eight grains to a scruple. Externally, it is occasionally used as an ingredient in stimulating plasters.

**OFF. PREP.**—Mistura Assafoetida, L. D. Tinctura Assafoetida, L. E. D. Spiritus Ammoniae Foetidus, L. D. Tinctura Castorei comp., E. Pilulæ Assafoetidæ compositæ, E. Pilulæ Aloes et Assafoetidæ, E. Pilulæ Galbani compositæ, L. Enema Foetida, D.







*Anethum trachanactis* ?



## ANGELICA ARCHANGELICA.

*Garden Angelica.**Class V. PENTANDRIA.—Order II. DIGYNIA.**Nat. Ord. UMBELLIFERÆ, Lin. &c.*

GEN. CHAR. *General involucre* often wanting. *Fruit* sub-compressed, 3-ribbed; ribs acute, winged. *Petals* uniform, incurved entire.

SPEC. CHAR. Leaves bi-pinnated, with the terminal leaflet 3-lobed.

*Syn.*—Angelica, *Camer. Epit.* 899. *f.*; *Lob. Icon.* 698. *f.*; *Trag. Hist.* 421. *f.*

Angelica sativa, *Bauh. Pin.* 155; *Bauh. Hist.* v. 3. p. 2. 148. *f.*; *Matth. Valgr.* v. 2. 513. *f.*; *Fuchs. Hist.* 124. *f.*

Angelica, *n.* 807; *Hall. Hist.* v. 1. 358.

Angelica major, *Dod. Pempt.* 318, *f.*

Angelica Archangelica, *Lin. Sp. Pl.* 360; *Willd.* v. 1. 1428; *Fl. Brit.* 311;

*Eng. Bot.* v. 36. t. 2561; *Woodv. t.* 50; *Stokes,* v. 2. p. 97.

FOREIGN.—*Angelique*, Fr.; *Angelica domestica*, It.; *Angelikawurzel*, Ger.

ANGELICA is either a native of this country or completely naturalized, being found growing naturally at Broadmoore, about seven miles north-west from Birmingham, and in the marshes, among reeds by the side of the Thames, between Woolwich and Plumstead; and in some other places; flowering from June to September.

The root is large, fleshy, branched, resinous, brown externally and white within. The stem is erect, four or five feet high, jointed, round, hollow, striated, smooth, of a purplish hue or somewhat glaucous at the lower part, and sends off numerous branches,

which terminate in large globular many-rayed umbels. The foliage, stalks, and even the flowers, are all of a bright green. The leaves are numerous, very large, petiolated, smooth and pinnated, with the leaflets ovate-lanceolate, pointed, cleft, acutely serrated smooth, and having the terminal ones 3-lobed; the foot-stalks, membranous at the base, tumid, with many ribs, and very much dilated. The general bractees or involucre are few, linear, deciduous, often wanting; the partial ones, consisting of about eight linear-lanceolate leaves, occasionally enlarged, leafy and notched. The flowers are numerous, of a greenish-white colour, and grow in large terminal umbels, composed of several partial ones, both of which are nearly globose and many-rayed. There is no calyx; the corolla is small, and divided into five equal, lanceolate, petals, with the points notched and turned inward; the stamens thread-shaped, spreading, longer than the corolla, with roundish anthers; the germen is inferior, ovate, furrowed, supporting two very short, erect, and subsequently recurved styles, with obtuse stigmas. The fruit is a sort of capsule, large, flat on one side, convex on the other, with three acute ribs, emarginate at both ends, divisible into two parts, and containing a single brown, ovate, pointed seed. Fig. (a) represents a flower somewhat magnified; (b) the capsule; (c) a seed.

Bohemia, and Spain, are said to produce the best Angelica. The college formerly directed the Spanish only to be kept in the shops. Linneus, however, avers that the plant is most vigorous on its native northern mountains, and gives a decided preference to the root dug here, either early in the spring, or late in autumn. This plant, and the *Acorus Calamus*, are almost the only aromatics of European growth; the former is decidedly more pleasant, and is very undeservedly neglected in modern practice.

QUALITIES.—The roots are the part used, and possess a fragrant agreeable smell, and a bitterish pungent taste; on being chewed they are first sweetish, afterwards acrid, and leave a glowing heat in the mouth, and fauces, which continues for some time. The stalks, leaves, and seeds, possess the same qualities in a lesser degree. Dr. Lewis says, that on wounding the fresh root early in the spring, it yields from the inner part



of the bark an unctuous, yellowish, odorous juice, which, gently exiccated, retains its fragrance, and proves an elegant, aromatic, gummy resin. Rectified spirit extracts the whole of the virtues of the root; water, but very little; and by distillation in the latter, a small portion of very pungent oil is obtained. Cows, goats, and swine eat it, but horses refuse it.

PROPAGATION AND CULTURE.—It delights in moist situations on the banks of running water, but will grow freely in any soil and exposure. The plants are raised from seed; and, for a bed four feet and a half by six feet, sown in drills a foot apart, to be transplanted, half an ounce of seed will be requisite. “Sow in August, or as soon as the seed is ripe, as the plants will come up earlier and stronger than from a sowing in the spring. When the plants are advanced from four to six inches high, transplant them into rows two feet apart. They will soon strike root, and advance quickly in strong growth. In the second year, their strong erect branchy stalks will be several feet high, producing large umbels of seed, ripening in autumn, which, as well as the leaves of the plant, are used in medicine. But, for candying, the young shoots of the stems, and stalks of the leaves are the useful parts; being cut, while green and tender, in May and June, they are made by confectioners into the sweetmeat called Angelica. In the second year, if seed is not wanted, cut the plants down in May, and the stool will send out side-shoots; by repeating this practice every year, the same plant may be long continued. Cuttings will also grow.”—*Abercrombie*.

MEDICAL PROPERTIES AND USES.—The Laplanders extol it not only as food, but as a medicine. For coughs, hoarsness, and other pectoral disorders, they eat the stalks roasted in hot ashes; they also boil the tender flowers in milk, till it attains the consistence of extract, which they use to promote perspiration in catarrhal fevers, and to strengthen the stomach in diarrhæa. The leaves, seeds, and root are certainly good aromatic tonics, and may be given three or four times a day, in doses of two scruples, to a drachm. An agreeable sweetmeat is made of the root by the confectioners of London, which is only surpassed by that of ginger.

The following passage from old Gerarde, if not instructive, is at least exceedingly entertaining:

“The rootes of Garden Angelica is a singular remedie against poison, and against the plague, and all infections taken by euill and corrup aire, if you do but take a peece of the roote and holde it in your mouth, or chew the same betweene your teeth,

it doth most certainly driue away the pestilentiall aire, yea, although that corrup aire have possessed the hart, yet it driueth it out againe by vrine and sweate, as Rice and Treacle doth, and such like *Antipharmaca*. Angelica is an enimie to poisons: it cureth pestilent diseases, if it be vsed in season: a dram waight of the powder hereof is given with thin wine, or if a feauer be vehement, with the distilled water of *Carduus benedictus*, or of *Tormentill*, and with a little vineger, and by it selfe also, with Treacle of Vipers added. It openeth the liuer and spleene: draweth downe the tearmes, driueth out or expelleth the seconde. The decoction of the roote made in wine, is good against the cold shiuering of agues. It is reported that the roote is auailable against witchcraft, and inchantments, if a man carrie the same about him, as Fuchsius saith. It extenuateth and maketh thinne grosse and tough flegme; the roote being vsed greene, and while it is full of iuice, helpeth them that is asthma take, dissoluing and expectorating the stuffings therein, by cutting off and clensing the parts affected, reducing the bodie to health againe; but when it is dry it worketh not so effectually. It is a most singular medicine against surfeiting and lothsomnes to meate: it helpeth concoction in the stomacke, and is right beneficial to the hart: it cureth the bitings of mad dogs, and all other venemous beasts. The wild kinds are not of such force in working, albeit they haue the same vertues attributed vnto them.”\*

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\* The Herball or Generall Historie of Plantes gathered by John Gerarde of London, Master in Chirurgerie. p. 849, fol. Lond. 1597.







*Cithusa cynapium?*



## ÆTHUSA CYNAPIUM.

*Lesser Hemlock, or Fool's Parsley.**Class V. PENTANDRIA.—Order II. DIGYNIA.**Nat. Ord. UMBELLATÆ, Lin. UMBELLIFERÆ, Juss.*

GEN. CHAR. *Universal involucre 0 ; partial 3-leaved, pendulous, placed on the outside. Fruit ovate, 5-ribbed.*

SPEC. CHAR. “*Leaves uniform ; leaflets wedge-shaped, decurrent, with lanceolate segments.*”—*Smith.*

*Syn.—Cicutaria tenuifolia. Raii. Syn. 215 ; Ger. Em. 1063.f.*

*Cicutaria apii folio. Bauh. Hist. v. 3.p. 2. 180.f.*

*Cicutaria fatua. Lob. Icon. v. 2. 280.f.*

*Cynapium. Riv. Pentap. Irr. t. 76.*

*Coriandrum Cynapium. Crantz. Austr. 111 ; Roth. Germ. v. 1. 130. v. 2. 346.*

*Æthusa. n. 765. Hall. Hist. v. 1. 336.*

*Æthusa Cynapium. Lin. Sp. Pl. 367 ; Willd. v. 1. 1446 ; Fl. Brit. 323 ;*

*Eng. Bot. v. 17. t. 1192 ; Curt. Lond. t. 18 ; Hook. Scot. 92 ; Bull. Fr. t. 91.*

FOREIGN APPELLATIONS.—*La petite Cigue, Fr. ; Cicuta minore, Ital. ; Kleiner Schirling, Ger.*

FOOL'S PARSLEY, so called from the deleterious property of the plant, and the resemblance it bears to parsley, for which it is sometimes unfortunately mistaken, is an annual plant, common in gardens and cultivated grounds in every part of Great Britain and Ireland ; flowering from June to September. We observed it in profusion last summer, (1826,) in the church-yards of St. George the Martyr, Borough ; and St. Martin in the Fields, London.

From a root (*d*) which is slender and spindle-shaped, the stem rises to the height of a foot or more ; it is erect, smooth, branched, striated or slightly grooved, hollow, and generally of a dark purple colour at the base, but not spotted. The lower leaves

are tri-pinnate, smooth and shining; of a dark green colour, and supported on short sheathing foot-stalks; the upper ones are bi-pinnate; segments ovate-lanceolate, deeply cut, lobed, and more or less decurrent. The umbels are terminal, on longish peduncles, many rayed, the inner rays becoming gradually shorter; umbellules, small and spreading. The partial involucre consist of three long, linear, pendent leaves, which only half encompass the umbel on the outside. The flowers (*a*) are very small; the petals white, unequal, obcordate, and somewhat radiating; the stamens are five, simple, supporting roundish anthers. (*b*) The germen is beneath the flower, having two reflex styles and obtuse stigmata. The fruit (*c*) is ovate, roundish, deeply grooved, crowned with the styles, and divisible into two parts, each containing a single seed.

This plant, on account of its acrid effects when incautiously admitted into the stomach, derives its generic appellation *Æthusa*, from *αἰθυσσω*, a Greek word, which signifies to make warm; and the trivial name *Cynapium*, or Dog's parsley, was restored to the modern nomenclature from the writings of Rivinus; in which it ranks as a genus.

QUALITIES.—The seeds, when bruised, have a slight disagreeable odour, and a nauseous pungent taste. Alcohol extracts their active matter; but whether it be imparted to water, we have not been able to ascertain.

DISTINCTIVE CHARACTERS.—Being so abundant a weed in rich garden soils, the *Æ. Cynapium* is frequently mistaken for common parsley; and therefore deserves to have its character and noxious qualities universally known and exposed. Although it bears a strong resemblance to the garden parsley, it exhibits differences in its botanical characters, by which it may at once be distinguished. The leaves of fool's parsley are finer, more acute, decurrent, and of a darker green; and instead of the peculiar parsley smell, have, when bruised, a disagreeable odour. When the flower stem of the fool's parsley appears, the plant is readily distinguished from *all* other umbellate plants, by what is called its *beard*,—three long, pendulous leaves of the involucre, (*e*) under the partial umbels. The flowers too of the fool's parsley



are *white*, those of the garden parsley pale *yellow*. In order to prevent mistakes it has been recommended to cultivate the *curled* variety of the common parsley only; as it not only possesses the same virtues, but also makes a more elegant garnish.

From Dr. Buckhave,\* we have gleaned the following interesting account; by which it will be seen, that it has also been inadvertently used for *Conium maculatum*. From this plant, however, it is essentially distinguished, as well by the inferiority of its size and unspotted stalk, as by the partial *involucres*, already described.

“ A patient, aged 40, being afflicted with carcinomatous ulcerations of the face and neck, Hemlock pills were prescribed; which she took without inconvenience for two months. But no change, for the better, being produced upon the disease, he prescribed the herb of the Hemlock; directing an ounce to be boiled in thirty-two ounces of water; and of the strained liquor, three ounces were ordered to be taken daily, in different portions, for four or five weeks. But, during that time, she frequently complained that the draughts excited tremors, vertigo, headache, cholic pains, vomiting, loss of strength and aversion to food. Suspecting that these might proceed from regimen, he directed strict attention to that particular; and advised her to continue the decoction. But being afterwards informed that symptoms still more alarming had taken place, particularly violent vomiting, he was led to examine the plant, and soon found a large proportion of the *Æthusa*. After this, she was furnished with genuine Hemlock; formed a similar decoction of it; and took it in the same manner without inconvenience. Under the medicine, the symptoms of the disease gradually decreased, and at the end of eleven months, the ulcerations healed.” This author relates, also, two or three others cases of the same kind.

POISONOUS EFFECTS.—The subjoined cases more fully illustrate the symptoms this violent poison produces.

“ Two ladies of Castle Donnington, Leicestershire, partook of some sallad, wherein *Æthusa Cynapium* had been put by mistake, with common parsley, for which it had *grown* and *was gathered*. Symptoms of an alarming kind soon followed, indicative of the full operation of that pernicious vegetable. They were, a troublesome nausea with occasional vomiting; accompanied with oppressive headache and giddiness; also a strong propensity to slumber, at the same time that *calm* repose was wholly prevented by frequent startings and excessive agitations. The mouth, throat, and stomach, were impressed with the sensation of pungent heat, attended with great difficulty in swallowing. Increased thirst prevailed, with total loss of appetite for every kind of solid aliment. The extremities felt benumbed and were affected with tremors; and all the vital and animal functions were performed with unusual inactivity.” The ladies recovered, but no allusion is made to the treatment that was pursued.†

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\* *Acta Regiæ Societatis Medicæ Hauniensis*, vol. i.

† See the *Medical and Physical Journal*, Vol. XIV. p. 425.

The following relation was communicated to Mr. Curtis, by Mr. Lowe, surgeon, at Preston :—

“ On Thursday, the 5th of June, Mr. Frekleton, a healthy, strong man, about 35 years of age, a publican, eat a handful of fool’s parsley with nearly the same quantity of young lettuce, about one o’clock at noon ; in about ten minutes he was affected with a pain and hardness in his stomach and bowels, attended with a rumbling. He walked out into the fields, but was seized with such langour, weariness, and weakness, that it was with difficulty he supported himself till he got home ; he was much troubled with giddiness in his head, his vision was confused, and sometimes objects appeared double : at seven o’clock he took an emetic, which brought up, he supposes, all the fool’s parsley he had eaten, but not any of the lettuce ; this considerably relieved him from the uneasy sensations in the bowels, but the other symptoms continued, and he passed a restless night. Next day he had much pain in his head and eyes, which last were inflamed and bloodshot : he had different circumscribed swellings in his face, which were painful and inflamed, but they were transient and flew from place to place ; this night he took a powder which made him sweat profusely. On Saturday his eyes were highly inflamed, painful, and entirely closed by the surrounding inflammation ; this day he was bled, which gave him much ease in his head and eyes. From this time until Monday he continued to get better, but had, even then, pain, heat, and inflammation in his eyes, with œdematous swellings of his cheeks ; his remaining symptoms went off gradually, and he is now well. He had been told that the plant he had eaten was Hemlock : to be satisfied, I accompanied him into the garden where he had gathered the plant, and found it to be *Æthusa Cynapium*, or fool’s parsley.”

M. Vicat relates that a boy six years of age, having eaten this plant at four in the afternoon, which he took for parsley, began immediately to utter cries of anguish, and complained of cramps in the stomach : while he was going from the country to his father’s house, the whole of his body became excessively swelled, and assumed a livid appearance : his breathing became every moment more difficult, and short ; and he died towards midnight. Another child, aged four, was also poisoned by the same plant, and although the contents of his stomach were rejected, he went out of his senses ; talked extravagantly ; but eventually recovered, by suitable medical assistance.

**MORBID APPEARANCES.**—Riviere informs us, p. 255, that a person died after having taken this plant. “ His tongue was black ; a brownish serosity was found in the stomach ; the liver was hard, and of a yellow colour ; the spleen livid ; but the body was not at all emphysematous.”

**TREATMENT.**—Emetics and purgatives should be administered, and as soon as the poison is evacuated, vinegar and the citric, or other vegetable acids. Should stupor remain, apply cold affusions to the head, or bleed from the jugular vein : apply friction to the body, and sinapisms to the feet : and during the cure, give small doses of sulphate of magnesia, dissolved in almond emulsion.







*Phellandrium aquaticum*



## PHELLANDRIUM AQUATICUM.

*Fine-leaved Water Hemlock.**Class.* V. PENTANDRIA.—*Order* II. DIGYNIA.*Nat. Ord.* UMBELLATÆ, *Lin.* UMBELLIFERÆ, *Juss.*

GEN. CHAR. *Involucre* o. *Flowers* of the disk smallest. *Fruit* ovate, smooth, crowned with the calyx and styles.

SPEC. CHAR. *Leaflets*, with narrow, wedge-shaped, cut, divaricated segments. *Fruit* ovate, with five ribs.

*Syn.*—Phellandrium. *Dod. Pempt.* 591; *Rivin. Pentap. Irr. t.* 65; *Hall. Hist. v.* 1. 332.

Phellandrium vel Cicutaria aquatica quorundam. *Raii. Syn.* 215; *Bauh. Hist. v.* 3. 183.

Cicutaria palustris. *Ger. Em.* 1063. *f.*; *Lob. Icon.* 735. *f.*; *Park.* 933.

Œnanthe Phellandrium. *Spreng. Prodr.* 37; *Smith Eng. Fl. v.* 2. *p.* 72.

Ligusticum Phellandrium. *Crantz. Fl. Austr. fasc.* 3. 84.

Phellandrium aquaticum. *Lin. Sp. Pl.* 366; *Willd. v.* 1. 1444; *Fl. Br.* 321; *Eng. Bot. v.* 10. *t.* 684; *Hook. Scot.* 92.

THIS is an indigenous biennial plant, found growing in ditches and rivers; but not very common. We found it in great abundance in a pond at Kentish town, and in a deep ditch at Battersea, associated with the elegant *Butomus umbellatus*, *Lythrum Salicaria*, and other aquatics. It flowers in July and August.

From a jointed root, the fibres of which grow in whorls, proceeds an erect, hollow, smooth, furrowed stem, of a yellowish green colour, and very thick at the lower part, with diverging branches, to the height of three or four feet. The leaves are large, spreading, smooth, dark, shining green, tripinnate, and

finely divided. The umbels are many rayed, axillary, opposite to the leaves. The flowers are small, white, formed into umbels, which have a partial involucre, composed of many lanceolate small leaves; petals equal, obcordate; calyx 5-leaved. The filaments are five, longer than the corolla, and supporting roundish anthers. The germen is inferior, oblong, with two styles, and obtuse stigmata. The fruit is ovate, smooth, striated, and splits into two small seeds. The genus *Phellandrium* is nearly allied to *Ænanthe*; but different, in wanting a general involucre, and in having all the florets fertile, and not radiate. Fig. (a) represents the corolla, stamens, &c. (b) a back view of the corolla, showing the calyx; (c) the germen and styles, with the stamens and anthers; (d) the fruit.

The origin of the generical name *Phellandrium*, is involved in considerable obscurity. It is usually derived from *φηλλος*, cork, and *ανηρ*, a man; but as this etymology throws no light on the meaning of the term, we agree with a modern author, in supposing it to be derived from *φηλεω*, to deceive, in allusion to the noxious qualities of the herb, and its resemblance to some that are wholesome.

QUALITIES.—The whole plant has a heavy, disagreeable smell; the seeds, (which are the parts that have been used in medicine,) have an aromatic odour, and a moderately pungent taste, resembling those of fennel. Distilled with water, they yield an essential oil, of a pale yellow colour, and a strong penetrating smell. One pound affords an ounce of watery, and nearly double this quantity of spirituous, extract, of which more than three drachms consist of resin.

MEDICAL PROPERTIES AND USES.—The seeds of *Phellandrium aquaticum* are carminative, narcotic, and diuretic. They have been much recommended on the continent in pulmonary consumption; and many cases are recorded, in which the disease, if not cured, was evidently relieved by them.

Dr. Selig narrates a case of a young unmarried woman, whose mother died consumptive. She laboured under cough, dyspnœa, purulent expectoration, pain in the chest, and fever in the afternoon.



It ought to be remarked, that during four weeks, in which Dr. Selig exhibited various pectoral and febrifuge medicines, the cough, fever, and pains in the chest were much abated; but the expectoration continued, and was offensive by its smell. He then ordered the water-hemlock, with nitre and gum arabic; and strongly urged his patient to permit a seton to be inserted between the shoulders; which she would not submit to. In fourteen days she recovered astonishingly. There were, now, scarcely any remains of fever, and the cough and purulent expectoration were greatly diminished. Her strength and spirits returned. But as the doctor still insisted on the propriety of introducing a seton, and as her terrors at the remedy were great, she abandoned him and his medicine. She then began to grow worse, and in a few months after again sent for him; but the disease was too far advanced to leave any room for hope, and she died some months afterwards.

The second case is more interesting. It is that of a youth of thirteen years of age, who had all the symptoms of phthisis pulmonalis; and who was completely cured by means of the *Semina Phellandrii aquatici*, which he took for two months, without interruption.

There is a note added to this case by Dr. Hufeland, the editor of the journal from which this account has been translated, where he says, that he also derived great benefit from the same remedy.

Dr. Hargens, of Kiel, likewise states, that it relieves consumptive symptoms; and as it is a native of our own country, we wish to direct the attention of British practitioners to it, as a remedy worthy of trial, and one that can be readily obtained. Should any one be disposed to make use of it, it ought to be borne in mind, that those of the *umbelliferous* plants of active properties, possess them in an increasing ratio, with their moist or shady situation.

The seeds also were employed by the ancients in calculous complaints; and have been highly extolled by Heister, Ernsling, and others among the moderns, as possessing valuable diuretic, antiseptic, and expectorant powers. When taken in large

doses, they appear to produce, though not very actively, the ordinary effects of the narcotic poisons; and on this account we have thought proper to figure the plant in our work. Wepfer has related several cases of poisoning by it; but it appears probable that the *Cicuta virosa* was mistaken for it. Linneus asserts that the horses in Sweden are seized with palsy by feeding on the Water-Hemlock; but that its noxious qualities are attributable to the larva of a small coleopterous insect, *Curculio paraplecticus*, L. (*Lixus paraplecticus*, of Fabricius and Latreille,) which is found in its stalks. The effects respecting this insect are now admitted to be fabulous.\*

**DOSE.**—Of the powdered seeds, from gr. xv. to ʒi and upwards.

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\* Linn. *It. Scan.* 182. De Geer, *Mém pour servir à l'hist. des insectes.* v. 227-30.







*Cicuta virosa.*

Weddell. Peab.



## CICUTA VIROSA.

*Long-leaved Water Hemlock, or Cowbane.*

Class V. PENTANDRIA. Order II. DIGYNIA.

Nat. Ord. UMBELLIFERÆ.

GEN. CHAR. No general *involucrum*. Fruit nearly orbicular, furrowed, with 6 double ribs. *Calyx* acute. *Petals* ovate, or slightly heart-shaped. *Floral receptacle* depressed. *Flowers* uniform, nearly regular, united.—*Smith*.

SPEC. CHAR. *Leaves* twice ternate; leaflets linear-lanceolate, decurrent.

*Syn.*—*Sium alterum* olusatrici facie, *Ger. Em.* 256. *f.*; *Raii Syn.* 212; *Lob. Ic.* 208. *f.*  
*Sium aquaticum*, foliis multifidis longis serratis, *Moris. v.* 3. 283. *sect.* 9. *t.* 5. *f.* 4.

*Sium erucæ folio*, *Bauh. Pin.* 154; *Dalech. Hist.* 1094. *f.*

*Cicuta aquatica* Gesneri, *Bauh. Hist. v.* 3. *p.* 2. 175. *f.*

*Coriandrum Cicuta*, *Roth. Germ. v.* 1. 130. *v.* 2. *p.* 1. 347.

*Sium*, *n.* 781. *Hall. Hist. v.* 1. 346.

*Cicuta virosa*, *Lin. Sp. Pl.* 366; *Willd. v.* 1. 1445; *Fl. Brit.* 322; *Eng. Bot. v.* 7. *t.* 497; *Hook. Scot.* 92; *Woodv. Suppl. t.* 268; *Stokes, v.* 2. 117; *Fl. Dan. t.* 208.

PROVINCIALY.—*Long-leaved Watercresses*; *Long-leaved Water Hemlock*; *Poisonous Cow-bane*.

FOREIGN.—*La cicutaire aquatique*; *La cique aquatique*, *Fr.*; *Cicuta aquatica*, *It.*; *Cicuta acuatica*, *Sp.*; *Cegude aquatica*, *Port.*; *Der Wütherich, der giftige Wüterich*: *der Wasserschiefeling, Berstekraut*, *Ger.*; *Omeg, Omernik*, *Rus.*

THIS plant has often been confounded with the *Phellandrium aquaticum*, in consequence of the same English name being applied to both. In Weller's work on poisonous vegetables, the last mentioned plant is given as a synonym to the *Cicuta virosa*, and as a natural consequence of confounding the two, the account of its properties, and effects, is made up from the history of both. By referring to figure 10, vol. i. of our work, and comparing the two plants, together with the botanical descriptions of each, their

specific differences will be readily distinguished, and the virtues of each accurately ascertained.

This plant, which is much more powerful in its effects than the *Conium maculatum*, is supposed by Haller and many others to have yielded the celebrated Athenian poison :\* and as goats will not touch the common Hemlock, there is some reason to think that it is the species referred to by Lucretius :

———— Videre licet pinquescere sæpe cicuta  
Barbigeras pecudes, hominique est acre venenum.

The *Cicuta virosa*, is by far the most active of the poisonous plants of Great Britain ; fortunately, however, for us, it is somewhat scarce, or at least, very local in this country. It grows in many parts of England, in ditches, and by the sides of rivers and lakes, flowering in July and August. Professor Hooker, in his “ *Flora Scotica*,” enumerates the following as the principal stations for this plant in Scotland : the side of Loch-end, near Edinburgh ; Pow Mill, Kinrosshire ; in marshes near Forfar Loch ; Otterton Loch, Fifeshire ; about Mugdoch, Bardowie, and Donglaston Lochs ; Loch near new Kilpatrick ; and also near Glasgow, where it occurs in great abundance.

The root is perennial, tuberous, hollow, with many whorled fibres, and divided by transverse partitions into numerous cells. The stem, like the root, is very large, hollow, leafy, branched, furrowed, smooth, and rises to the height of three or four feet. The leaves are bi-ternate, of a bright green colour, and stand upon long foot-stalks ; the radical ones pinnated ; the leaflets deeply serrated, tapering at each end, from one to two inches long, and more or less decurrent. The flowers are produced in large, many-rayed umbels, partly terminal, and partly opposite to the leaves. The general bractees are linear, seldom more than one or two, and frequently entirely wanting ; the partial ones numerous, narrow, pointed, and unequal. The calyx consists of five ovate, acute, somewhat unequal, permanent leaves. The flowers are very small ; the petals five, white, nearly heart-shaped, and incurved at the apex ; the filaments are thread-shaped, spreading,

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\* *Cicuta quoque venenum est, publica Atheniensium pœna invisa.*

*Pliny*, 26. 13.



about the length of the corolla, supporting roundish anthers : the germen hemispherical, ribbed ; the styles two, filiform, at first short erect, but subsequently elongated and spreading, with obtuse stigmas. The fruit is roundish, smooth, and divisible into two parts, having each one seed, convex, and marked with three prominent double ribs, and flat on the other, “ which afford an excellent generic character.” Fig. (a) represents the calyx ; (b) the calyx with the germen and styles ; (c) a perfect flower.

**POISONOUS EFFECTS AND MORBID APPEARANCES.**—This violent poison produces the following symptoms:—Dazzling, obscurity of vision, vertigoes, cephalalgia, vacillating walk, agitation, anxiety of the precordia, cardialgia, dryness of throat, ardent thirst, eructations, vomiting of greenish matter, respiration frequent, and interrupted, tetanic contraction of the jaws, lipothymia, sometimes followed by a state of lethargy, and coldness of the extremities ; at other times a furious delirium, or attacks more or less approaching to epilepsy, especially in children, and young girls, which frequently terminate in death. In one or two cases, swelling of the face has been observed, with starting of the eyes. The most serious derangement of the nervous system has always been observed ; and has been more or less severe, in proportion to the quantity that may have been taken ; unless a part of the poison have been quickly ejected from the stomach. Wepfer, who wrote a work entitled “ *Historia Cicutæ Aquaticæ*,” narrates many cases of its effects on different men and animals. The following account is gleaned from his admirable treatise, and subjoined to it is one of the cases, in his own words :

In the month of March, 1670, two boys and six girls found the roots of this plant in a meadow, and upon tasting them, perceiving that they were not unpleasant, all partook of them. The two boys, who eat a large quantity, were soon after seized with pains of the precordia, loss of speech, an abolition of all the senses, and terrible convulsions. The mouth was so closely shut, that it could not be opened by any means. Blood was forced from the ears, and the eyes were horribly distorted. Both the boys died in half an hour from the first accession of the symptoms. The six girls, who had taken a smaller quantity of the roots, were likewise seized with epileptic symptoms, but in the intervals of the paroxysms some Venice treacle dissolved in vinegar, was given them ; in consequence of which, they vomited and recovered : but one, the sister of the boys who died, after she had vomited, had a very narrow escape for her life ; she lay nine hours with her

hands, and feet, outstretched and cold. All this time she had a cadaverous countenance, and her respiration could scarcely be perceived. When she recovered, she complained a long time of pain in her stomach, and was unable to eat any food; her tongue being much wounded by her teeth, during the convulsive fits.

“*Jacobus Mæder, puer sex annorum, capillis albis præditus, tener, vegetus tamen, domum rediit hilarius ac subridens, quasi re bene gesta; paulo post conquerebatur de præcordiorum dolore, & vix verbum effatus, humi prostratus urinam magno impetu ad Viri altitudinem eminxit; mox terribili aspectu, cum omnium sensuum abolitione convulsus fuit, os arctissime clausit, ut nulla arte aperiri valuerit, dentibus stridebat, oculos mire distortuebat, sanguis ex auribus promanabat: circa præcordia tumidum quoddam Corpus pugni virilis magnitudine Patris afflicti manum & miserandi Pueri præcordia, maxime circa Cartilaginem ensiformem, validissime feriebat: singultiebat crebro; Vomiturus quandoque videbatur, nihil tamen ore arctissime clauso ejicere valuit: artus mire jactabat & torquebat, sæpius caput retrorsum abripiebat, totumque dorsum incurvabatur in arcum, ut puellus subtus per spatium inter dorsum & stratum inoffense repere potuisset. Cessantibus convulsionibus per momeutum matris opem imploravit: mox pari ferocia illis redeuntibus nulla vellicatione, nulla acclamatione, nullove alio ingenio excitari poterat, donec viribus deficientibus expalluit & manu pectori admota exspiravit. Durarunt hæc Symptomata vix ultra horam dimidiam. Post obitum imprimis abdomen & facies intumuerunt absque livore, nisi pauco circa oculos conspicuo. Ex ore cadaveris usque ad horam sepulturæ spuma viridis largissime emanavit & quamvis sæpius à Patre mæstissimo deteria fuisset, mox tamen nova succedebat.*”

Schwencke, a German writer, also gives an account of four boys, who partook of this plant, three of whom died. The internal surface of the stomach was highly inflamed, and the brain gorged with blood. Boerhaave narrates some cases, where those who were vomited with the sulphate of zinc, recovered.

“*Trois soldats allemands perirent en moins d’une demi-heure on trouva les membranes de l’estomac perforées chez l’un des bois, corrodées chez les deux autres. L’estomac etait rempli d’une écume blanchâtre. Les intestines, les poumons, et le cœur etaient flasques, et fletris, les vaisseaux veineux pleins d’un sang très-fluide.*”—*L’Histoire de l’Academie des Sciences de Paris, année 1715.*

Linneus, in his *Flora Lapponica*, gives a long account of a fatality which befel the cattle, and which he was enabled to arrest, by ascertaining the important fact, that it was entirely owing to their eating the *Cicuta virosa*.

TREATMENT.—See ART. No I. Vol. i.







*Coriandrum sativum.*

W. Clarke Del.

Weddell Sc.



## CORIANDRUM SATIVUM.

*Common Coriander.**Class V. PENTANDRIA.—Order II. DIGYNIA.**Nat. Ord. UMBELLATÆ.*

GEN. CHAR. *Fruit* a single or double globe, smooth, without ribs. *Corolla* radiate. *Floral receptacle*, none.

SPEC. CHAR. *Fruit* globular, obscurely ribbed, and divisible into 2 hemispherical seeds. *Leaflets* of the lower leaves wedge-shaped.

Syn.—*Coriandrum majus*, Bauh. Pin. 158; Moris. v. 3. 269; Riv. Pentap. Irr. t. 71.

*Coriandrum*, n. 764, Hall. Hist. v. 1. 335; Raii. Syn. 221; Ger. Em. 1012. f.; Camer. Epit. 523. f.; Bauh. Hist. v. 3. p. 2. 89. f.; Fuchs. Hist. 345. f.; Matth. Valgr. v. 2. 121. f.

Κοριον, ἢ κοριαννον, Diosc. lib. 3. cap. 71.

Κοριανδρον ἢ κουσβαρος hodiè.

*Coriandrum sativum*. Lin. Sp. Pl. 367; Willd. v. 1. 1448; Fl. Brit. 320; Eng. Bot. v. 1. t. 67; Fl. Græc. v. 3. 76. t. 283.; Woodv. t. 181. Mart. Rust. t. 141.; Stokes, v. 120.

FOREIGN.—*La Coriandre*, Fr.; *Coriandro*, It.; *Cilantro*, Sp.; *Koriander*, Ger. Russ.

CORIANDER is an annual plant, a native of Italy and the East; but has naturalized itself in some parts of Essex, where it is extensively cultivated, for druggists and confectioners. It flowers in June and July, ripening its seed in August. We found it growing by the side of the Thames, near the Red House, Battersea, where it had probably sprung from seeds scattered there by Mr. William Anderson, of the Botanic garden, Chelsea.

The root is tapering: the stem branching, divaricated, leafy, round, striated, purplish at the lower part, and rises a foot or eighteen inches high. The leaves are compound; the lower

ones pinnated, with wedge-shaped, acutely notched, or fan-shaped leaflets; and the upper thrice-ternate, with fine linear-pointed segments. The flowers are white, or slightly tinged with red, and disposed in umbels at the upper part of the stem. Both general and partial umbels are many-rayed; the former generally consist of 4 or 5 rays, the latter of more numerous rays. The general bractees are almost entirely wanting; but the partial ones are usually 3, linear-lanceolate, and placed laterally. The calyx consists of 5 acute, unequal leaves; the petals are 5 also, inversely heart-shaped, and inflected at the tips; those of the innermost flowers nearly equal and lobed, but those of the margin are irregular, larger, and not inflected. The filaments are thread-shaped, with roundish anthers, and the style spreading with small obtuse stigmas. The fruit is globular, obscurely striated, smooth, and divisible into two hemispherical concave seeds.—Fig. (a) is a floret of the radius; (b) a floret of the disc; (c) the germen and styles.

QUALITIES.—The leaves and stalk, when bruised, emit an intolerably foetid odour, greatly resembling that of the insect known under the name of *Pentatoma viridis*, a species of the Linnean genus, Cimex, or Bug, and hence the origin of the generic name Coriandrum, from κορις, *cimex*, a bug. The seeds when fresh have also a disagreeable odour, but by drying they become grateful; to the taste, they are moderately warm and pungent, and have a pleasant aromatic odour. Alcohol extracts all their active principles, but water only extracts it partially. Distilled with water, a small quantity of essential oil is obtained, upon which the active properties of the seeds entirely depend.

USE.—The seeds agree in their medical properties with those of caraway; they are carminative and stomachic, and hence are frequently added to infusions of senna, and to other cathartics; to cover the unpleasant taste, and to obviate the irritating effects they are apt to produce on the stomach and bowels. Formerly, the young leaves were used in sallads and in soups; but their scent is disagreeable to most persons.

DOSE.—From ℥j. to ʒj. Dr. Withering has known ʒvj. of the seeds taken at once, without any remarkable consequences.







*Carum Carui.*

*W. Mark del. et sculp.*

*London. Published by John Churchill Leicester Square. March. 1828.*



## CARUM CARUI.

*Common Carraway.**Class V. PENTANDRIA.—Order II. DIGYNIA.**Nat. Ord. UMBELLIFERÆ. Lin.*

GEN. CHAR. *Involucre* 1-leafed. *Petals* inversely heart-shaped, inflex emarginate. *Fruit* elliptic-oblong, with equidistant ribs; insterstices convex and striated. *Calyx* 0, or very minute.

SPEC. CHAR. *Stem* branched. *Partial involucre*s none.

*Syn.* —Carum seu Careum, *Raii Syn.* 213; *Ger. Em.* 1034.

Caros, *Fuchs. Hist.* 396. *f.*; *Bauh. Hist.* 3, p. 2. 69. *f.*

Carum, *n.* 789. *Hall. Hist. v.* 1. 351.

Carum, *Dod. Pempt.* 299. *f.*; *Matth. Valgr. v.* 2. 114. *f.*; *Camer. Epit.* 516. *f.*

Carum Carui, *Lin. Sp. Pl.* 378.; *Willd. v.* 1. 1470; *Fl. Brit.* 330; *Eng. Bot.*

*v.* 21. *t.* 1503; *Hooch. Scot.* 95; *Woodv. p.* 125. *t.* 45.

FOREIGN.—*Carvi*, Fr.; *Carvi*, It.; *Alcaronea*, Sp.; *Kümmelsamen*, Ger.

CARRAWAY is an umbelliferous biennial plant, a native of the north of Europe, which has become naturalized, in some parts of Britain, where it has long been cultivated for confectioners, distillers, and bakers, as well as for medicinal purposes. The flowers are produced in June, and the seeds ripen in August or September.

From a spindle-shaped root proceeds an erect, branched, leafy, furrowed, smooth stem, which rises to the height of about two feet. The lower leaves are of a light green colour, eight or ten inches long, stalked, smooth, bipinnate, with numerous finely cut leaflets, the segments of which are narrow, linear, and pointed; those on the stem are smaller, and stand opposite, one

of them on a dilated membranous-edged footstalk, the other sessile. The flowers are numerous, white, or of a pale flesh colour, form an umbel, which is terminal, erect, and composed of many rays. The general umbel is large, usually of ten rays, and furnished with a 1—3-leaved general involucre, which is sometimes deficient; the partial is entirely wanting. The calyx is very minute, or altogether deficient. The petals are five, nearly equal, small, inflexed; the filaments, spreading, about as long as the petals, and bearing small, roundish 2-lobed anthers; the germen is inferior, ovate, supporting styles, which are very short in the flower, but afterwards become elongated, and terminate in bluntish stigmas. The seeds are two, elliptic-ovate, bent, of a greyish-brown colour, and marked with three dorsal, and two marginal ribs, the interstices being marked with three lines. Fig. (a) represents a perfect flower; (b) a stamen; (c) the germen and styles, magnified.

CULTURE.—The carraway, or caroy, *καρος* of Dioscorides, is much cultivated in Essex, especially at Mersea Island. Mr. Neil says the seed should be sown in Autumn, soon after it is ripe, on a moist rich soil; the seedlings quickly rise, and the plant being biennial, a season, by this plan, is gained. The seed is generally sown in rows; and in the Spring the plants are thinned out, to four or six inches apart. At the end of Summer, when the seeds appear to be nearly ripe, the plants are pulled up, and set upright to dry; the seed being then easily beaten out.

QUALITIES AND MEDICAL PROPERTIES.—Carraway seeds are warm and aromatic, and give out their virtues, which depend on an essential oil, partially to water, but entirely to alcohol. In former times, the tapering fusiform roots were eaten like parsnips, to which Parkinson gives them the preference. In the Spring, the leaves are sometimes put into soup. The seeds are used for cakes, and, incrusted with sugar, are known by the name of *comfits*. They are likewise distilled with spirituous liquors. The oil of carraways is stimulant and carminative, and is often used to cover the taste of other medicines, and to prevent them from griping.

The dose of the seeds is ʒj. or ʒij.







*Pastinaca Chopanar.*



*Opoponax*

XCVIII

PASTINACA OPOPONAX.

*Opoponax*, or *Rough Parsnip*.

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*Class V. PENTANDRIA.—Order II. DIGYNIA.*

*Nat. Ord. UMBELLATÆ, Lin. UMBELLIFERÆ, Juss.*

GEN. CHAR. *Fruit* elliptical, compressed, nearly flat, with 3 dorsal ribs, and 2 marginal ones. *Petals* entire, involute, equal. *Calyx* very minute, obsolete. *Flowers* regular, uniform, fertile.

SPEC. CHAR. *Leaves* bipinnate; leaflets unequal at the base; scabrous on both sides.

*Syn.*—*Panax Costinum*, vel *P. pastinacæ folio*, *Bauh. Pin.* 156.

*Panax Heracleum majus*, *Ger. Em.* 1003.

*Panax Heracleum*, *Moris*, v. 3. 315. *sect. 9. t. 17. f. 1.*

*Panax Chironium*, *Dalech. Hist.* 741.

*Panax peregrinum*, *Dod. Pempt.* 309.

*Costus*, *Matth. Valgr.* v. 1. 48.

*Pseudocostus*, *Camer. Epit.* 28; *Dalech. Hist.* 758.

*Sphondylion*, vel potius *Pastinacæ Germanicæ affinis Panax*, sive *Pseudo-*

*Costus flore luteo*, *Bauh. Hist.* v. 3. p. 2. 156.

*Pastinaca Opoponax*, *Lin. Sp. Pl.* 376; *Willd. x.* 1. 1466; *Woodv. t.* 113;

*Fl. Græc. Sibth.* v. 3. t. 288.

Πολύκαρπον, ή αμπελόνα, hodié.

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THIS is a hardy, umbelliferous exotic, a native of the Levant, Turkey, Arabia, Sicily, and the south of Europe; which has long held a distinguished place in the *Materia Medica*, as affording the gum-resin, called *Opoponax*. The plant withstands our winters, in the southern counties well; flowering in June and July; but it is only in the warmer regions of the east that the juice concretes into the appearance which it presents to us, when imported from Turkey and India. It grows abundantly in

repute by the ancients, especially by Celsus, who administered it in affections of the spleen and in struma;\* but although, according to Virey,† it is considered by the continental physicians as “ bon discussif, resolutif, chasse les vents, atténue dans l’asthme et les obstructions,” it is scarcely ever used in England. It has, however, been regarded as antispasmodic and emmenagogue, and has been given for hysteria and chlorosis, in doses of from five grains, to half a drachm, but might, we consider, be expunged from our *materia medica*, as an article of little medical value.

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\* Lib. v. cap. xviii.

† Hist. Nat. des Med. p. 220.

\*\*\* The Editors deem it necessary to state, that they did not see the Plate of *Pastinaca Opoponax*, till it was too late to correct the lettering.







*Anethum graveolens.*

G. R. & D. Del.

Weddell Sc.



## ANETHUM GRAVEOLENS.

*Common, or Garden Dill.**Class V. PENTANDRIA.—Order II. DIGYNIA.**Nat. Ord. UMBELLATÆ.*

GEN. CHAR. *Fruit* elliptic-oblong, compressed, with equidistant ribs. *Petals* obovate, involuted, entire.

SPEC. CHAR. *Leaves* bipinnate; leaflets awl-shaped, *Seeds* compressed.

*Syn.*—Anethum. *Ger. Em.* 1033; *Raii Hist.* 415; *Camer. Epit.* 517. *f.*; *Matth. Valgr. v.* 2. 115. *f.*; *Fuchs. Hist.* 30. *f.*

Anethum hortense. *Park.* 886; *Bauh. Pin.* 147.

Anethum graveolens. *Lin. Sp. Pl.* 377; *Willd. v.* 1. 1469; *Gærtn. Fruct.* 1. 91; *Ait. Hort. Kew. v.* 2. 158; *Blackw. t.* 545; *Lob. Advers.* 347. *Woodv. t.* 159.

FOREIGN.—*Fenouil puant, ou persil odorant*, Fr.; *Appio pallustre*; *Sellero*, It.; *Eneldo de olor pesado*, Sp.; *Dill*, Ger.; *Sadacoopoy*, Tam.; *Sowa*, Hind.

DILL is a hardy biennial plant, a native of the corn fields of Spain and Portugal, and appears to have been introduced into England about the year 1570. According to Dr. Ainslie, it is also cultivated in Hindostan, where the seeds, called by the Brahmins *mishi*, are frequently sold in the bazaars of Lower India for caraway seeds. It is sometimes cultivated in our gardens as a medicinal plant, flowering in June and July.

The root is long, tapering, and whitish, striking deep into the ground, and sending up several erect, round, leafy, branching, jointed stems, rising to the height of two or three feet. The whole plant, with the exception of the flowers, is smooth, and of a deep glaucous-green colour. The leaves, as in all the plants

of this natural order, are placed alternately. They are large and doubly pinnated, upon broad, sheathing footstalks, with the leaflets linear and pointed. The flowers are produced in broad, flat, terminal umbels, of numerous general and partial rays, without either general or partial involucre. There is no calyx. The corolla consists of five equal, obovate, concave, yellow petals, with a broad, obtuse, involuted point. The filaments are five, yellow, spreading, incurved, and longer than the corolla, and bearing roundish, yellow anthers. The germen is inferior, or placed below the insertion of the petals, ovate, covered by the nectary, and surmounted by two short recurved styles, with simple stigmas. The seeds are oval, flat or much compressed, with three dorsal, equidistant prominent ribs, of a brown colour, and surrounded with a dull, pale yellow membranous expansion.—Fig. (a) represents an unexpanded flower, somewhat magnified, with the apexes of the petals inflected; (b) the same fully expanded; (c) a stamen and anther; (d) the germen and styles; (e) a seed; (f) the same cut transversely.

**CULTURE.**—It is raised from seed, of which, says Mr. Loudon, half an ounce is sufficient for a bed three feet by four feet. “Sow annually in February, March, or April, or occasionally in autumn, as soon as the seed is ripe to come up stronger in the spring, in any open compartment, either in drills six or seven inches apart, or broadcast thinly, and raked in evenly. The plants should remain when raised, and may be thinned moderately, should they rise too thick. They will shoot up in stalks, with leaves and seed umbels in summer and autumn, for use in proper season.”

**QUALITIES.**—The whole plant, particularly the seeds, which are the parts directed for use in the British pharmacopœias, have a powerful, aromatic odour, and a moderately warm pungent taste. These qualities depend on an essential oil, which is extracted by distillation with water. The seeds yield their active matter completely to alcohol, and partially to boiling water, by infusion.

**MEDICAL PROPERTIES AND USES.**—Like the anise and caraway, the seeds of Dill are carminative and stomachic; hence



they are used chiefly in dyspepsia, and in the flatulence to which infants are subject. They were formerly supposed to promote the secretion of milk, but this opinion is long since exploded. In India, where the plant is not uncommon, Dill seeds are given in infusion, as a stomachic, and also as a grateful cordial drink to women immediately after parturition.

DOSE.—In powder from gr. xv. to ʒj; of the essential oil, gtt. j. to gtt. iij.

OFF. PREP.—Aqua Anethi. L.

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## ANETHUM FŒNICULUM.—*Common Fennel.*

SPEC. CHAR. *Leaves* tripinnate; leaflets awl-shaped, drooping. *Fruit* ovate.

Syn.—Fœniculum vulgare. *Raii Syn.* 217; *Ger. Em.* 1032. *f.*; *Gærtn. v.* 1. 103. Fœniculum. *Camer. Epit.* 534; *Matth. Valgr. v.* 2. 135. *f.*; *n.* 760; *Hall. Hist. v.* 1. 333.

Fœniculum dulce. *Bauh. Pin.* 147.

Meum Fœniculum. *Sm. Eng. Flor. v.* 2. *p.* 85; *Spreng. Prodr.* 32.

Anethum Fœniculum, *Lin. Sp. Pl.* 377; *Willd. v.* 1. 1469; *Fl. Br.* 329; *Eng. Bot. v.* 17. *t.* 1208; *Woodv. t.* 160.

FOREIGN.—*Fenouil, ou Anis douce*, Fr.; *Finocchio*, It.; *Eneldo hinojo*, Sp.; *Fenchelsamen*, Ger.; *Mayuri*, Hind.

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FENNEL is a biennial plant, which, though originally a native of the south of Europe, is now so completely naturalized in many parts of England, on chalky soils, that it has been admitted into the British Flora by Hudson, Withering, Smith, and other botanists. We found it plentifully in the chalk-pits about Greenhithe, and also in the great pit at Charlton, in Kent.

The root is spindle-shaped, cylindrical, and whitish. The herb is smooth, and of a deep glaucous-green colour. The stems are about four or five feet in height, numerous, erect,

much-branched, solid, round, striated, jointed, and shining. The leaves are alternate, on footstalks with a broad, sheathing base; tripinnate, composed of long, capillary, acute, drooping leaflets, of a dark green colour. The flowers, like those of Dill, are in broad, many-rayed, flat, terminal umbels. The petals, five, obovate, with their points turned inward, and of a golden yellow colour; the filaments shorter than the petals, spreading, incurved, yellow, and furnished with roundish anthers. The germen is inferior, ovate; the styles are very short, and the seeds are small, oblong, very little compressed, 3-ribbed, and of a brownish-olive colour, when ripe. Three varieties are cultivated; the dark green leaved, the sweet fennel, and finocchio, or Azorian fennel. The seeds are generally imported from Italy, and are reckoned superior to those of our own growth.

QUALITIES.—The whole plant has a strong aromatic odour, and a warm, sweetish, pungent taste. The seeds afford, by distillation with water, a considerable quantity of essential oil, on which their taste and flavour depend.

MEDICAL PROPERTIES AND USES.—The seeds of *sweet fennel* are carminative and stomachic; but they are scarcely ever employed in the present practice. The roots of common fennel have a sweetish taste, are slightly aromatic, and were formerly ranked among the aperient roots; the tender stalks are used in salads, and the leaves enter into many fish sauces. The blanched stalks of finocchio are eaten as a salad, and they are likewise sometimes put into soups.

DOSE.—The dose of the bruised seed may be from ℥j to ʒj.

OFF. PREP. Aqua Fœniculi, L. D.

Oleum Seminum Fœniculi dulcis, D.







*Pimpinella Anisum.*

C. Reich. del.

W. D. Smith. sc.

London. Published for the Authors. April. 1830.



## CLVI

### PIMPINELLA ANISUM.

*Anise.*

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*Class V. PENTANDRIA. Order II. DIGYNIA.*

*Nat. Ord. UMBELLATÆ.*

GEN. CHAR. *Fruit* ovate-oblong, striated. *Calyx* none. *Petals* inversely heart-shaped, nearly equal, inflected. *Stigma* subglobose.

SPEC. CHAR. *Radical leaves* 3-lobed; *stem leaves* acutely laciniated. *Germen* downy.

*Syn.*—Anisum. *Ger. Em.* 1035; *Camer Epit.* 515; *Fuchs. Hist.* 62.f; *Dod. Pempt.* 299.f; *Raii Hist.* 450; *Park. Theatr.* 911; *Rivin. Pentarp. Irr.* t. 73; *Matth. Valgr.* v. 2. 113. f.

Anisum herbariis. *Bauh. Pin.* 159.

Anisum vulgare. *Clus. Hist.* 2. p. 202.

Pimpinella Anisum. *Lin. Sp. Pl.* 379; *Willd.* v. 1. p. 1473; *Ait. Kew.* v. 2. p. 160; *Blackw. t.* 374; *Woodv.* v. 3. t. 180; *Stokes.* v. 2. p. 140.

FOREIGN.—*L'anis*, Fr.; *Anice*, It.; *Anis*, Sp. Port. Ger. Dan. Swed. and Russ.; *Annison*, Arab.

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ANISE is a hardy annual, a native of Egypt, but cultivated in Malta and Spain for the seeds, which have been long known in domestic economy, and as an article of the materia medica. In this country the plant requires a warm border, but it is only in very favourable seasons that the seeds are ripened. Many authors mention it as one of the plants raised in our physical herb gardens near London, probably by mistake, for, as Mr. Neill observes, it is certainly too tender to be cultivated in England for profit.

The root is tapering and woody. The stem is erect, branched, solid, round, jointed, striated, slightly rough or downy, and rises about a foot in height. The lower leaves are roundish, indistinctly three or five lobed, unequally toothed, and stand upon scored sheath-like footstalks; those on the upper part of the stem, are divided into narrow, pinnated acute segments.

The flowers are small and white, in flat terminal umbels of many general and partial smooth rays, without any bractees. The corolla consists of five nearly equal, inversely heart-shaped petals, inflexed at the point. The filaments are five, capillary, spreading, longer than the corolla, and bearing roundish anthers. The germen is inferior, ovate, downy, with capillary, slightly spreading styles, and obtuse, capitate stigmas. The fruit is ovate, separable into two parts, and crowned with the long, capillary, permanent styles. The seeds are oblong, externally convex, each with five rather prominent ribs, the interstices rugose; flat on the inner surface with a longitudinal rib in the middle. Fig. (a) exhibits the root with a radical leaf; (b) an umbel with the seeds; (c) the fruit; (d) a single seed.

The generic name, *Pimpinella*, is supposed by Ambrosinus, whose opinion is adopted by Linneus, to be a corruption of *bipinella*, or *bipennula*, words expressive of the pinnate or feather-like structure of the foliage. The specific term *anisum* is derived from the Arabic word *ânysûm*.

QUALITIES.—Anise-seeds have an aromatic odour, and a warm grateful taste, accompanied with a degree of sweetness: water extracts very little of their virtues; alcohol the whole. In distillation with water they afford a pale straw-coloured volatile oil, which possesses the taste and smell of the seeds in perfection. A greenish-yellow, inodorous fixed oil is also obtained from anise-seeds by expression, mixed with a portion of the proper essential oil.

MEDICAL PROPERTIES AND USES.—These seeds, in consequence of the essential oil which they contain, are moderately stimulant, and possess the same virtues as a carminative and excitant with others of this class. They are used chiefly in dyspepsia, flatulencies, and in the tormina of infants. Hoffman strongly recommends them in weakness of the stomach, diarrhoeas, and for strengthening the tone of the viscera in general; and thinks they well deserve the appellation given them by Van Helmont, *intestinorum solamen*. Milk drawn from the breast after taking the essential oil, is found impregnated with its odour; and possibly this may be in part, the foundation of the power which it is supposed to possess, of increasing that secretion, and of the pectoral virtues formerly ascribed to it. The seeds may be taken in substance bruised, in doses of from twenty grains to two drachms; or what is preferable, from five to fifteen drops of the oil rubbed up with syrup and camphor mixture.

OFF. PREP.—*Spiritus Anisi*, L. *Spiritus Anisi compositus*, D. *Oleum Anisi*, L. D.







*Sambucus nigra*



## LXXIX

### SAMBUCUS NIGRA.

*Common Elder.*

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*Class V. PENTANDRIA.—Order III. TRIGYNIA.*

*Nat. Ord. DUMOSÆ, Lin. CAPRIFOLIA, Juss.*

GEN. CHAR. *Calyx* 5-cleft. *Corolla* rotate, 5-lobed.  
*Berry* 1-celled, 3-seeded.

SPEC. CHAR. *Cymes* with five main branches. *Leaves* pinnate; *leaflets* ovate, serrated. *Stipulas* obsolete.  
*Stem* arborescent.

*Syn.*—*Sambucus*, *Rhail. Syn.* 461; *Ger. Em.* 1422. *f.*; *Matth. Valgr.* v. 2. 606.

*f. Camer. Epit.* 975. *f.*; *Fuchs. Hist.* 64. *f.*

*Sambucus acinis albis*, *Rail Syn.* 461.

*Sambucus laciniatis foliis*, *Bauh. Pin.* 456. *Rail Syn.* 461.

*Sambucus*, n. 670. *Hall. Hist.* v. 1. 298.

*Sambucus nigra*, *Lin. Sp. Pl.* 385; *Willd.* v. 1. 1495; *Fl. Brit.* 336; *Eng.*

*Bot.* v. 7. t. 476; *Hook. Scot.* 96; *Woodv.* v. 1. t. 78.

FOREIGN.—*Le sureau, suzeau*; *Sambus*, Fr.; *Sambuco*; *Saugo*; *Sambugaro*, It.;  
*Sauco*; *Sauco negro*, Sp.; *Sabugueiro*, Port.; *Der Schwarze Hohlunder*;  
*Gemeiner Hohlunder*, Ger.; *Hyld*; *Hydetræe*, Dan.; *Fläder*, Swed.;  
*Vlierboom*, Dut.; *Busina*, *Bos derewo*, Russ.

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THE Common Elder is a well-known native tree, growing in hedges and woods; flowering in June, and ripening its berries in September. In Scotland it is called Boretree or Bourtree.

Common Elder rises with a woody trunk, that is filled with a white medullary substance or pith, and covered externally with a rough, ash-coloured bark, to the height of fifteen or twenty feet. The younger branches are smooth when young, and contain a very large proportion of a light, spongy pith. The leaves are very

long, of a shining green colour, and composed usually of two pair of leaflets, with an odd one, which are pointed, serrated, smooth, and nearly equal at the base. The flowers are numerous, cream-coloured, and form a large, beautiful cyme, with five principal branches, and many small ones at the extremity of the stem and branches. The calyx is superior, permanent, and cut into five deep segments: the corolla is monopetalous, nearly wheel-shaped, with five deep, obtuse, somewhat reflexed segments: the filaments are five, awl-shaped, about the length of the corolla, and bearing roundish, heart-shaped, yellow anthers. The germen is ovate, without a style; but supporting three obtuse stigmas. The berries are spherical, of one cell, containing three, sometimes two seeds, convex on one side, angular on the other. The berries have at first a reddish hue, but become of a purplish-black colour when ripe. Fig. (a) represents a flower somewhat magnified; (b) the calyx, with the germen and stigmas; (c) the fruit.

There are two principal varieties of the common Elder; one of them with cut leaves, and hence called parsley-leaved elder; and the white-berried, *Sambucus acinis albis* of J. Bauhin. The berries of both are whiter, and more pleasantly flavoured than in the original species.

The generic name *Sambucus*, occurs in the writings of Pliny and other ancient authors, evidently adapted from *σαμβυκη*, an instrument of music; "in the construction of which," says De Theis, "the wood of this tree on account of its hardness was used."

**QUALITIES.**—The *inner bark* possesses little smell, but has a sweetish, bitter taste, that is succeeded by acrimonious effects. The flowers have an oppressive sickly odour, which they yield to water; and by distillation, an essential oil may be obtained from them. The berries, which are inodorous, have a sweet taste, and yield a purple juice, which is a delicate test for alkalies and acids.

**MEDICAL PROPERTIES AND USES.**—The common Elder is the *ακτη* of the Greek writers; and we are informed by Dr. Ainslie, that the Arabians and Syrians of the present day are well acquainted with it; and use the inner green bark as an



aperient, and deobstruent. On account of these properties, it was used also by Boerhaave and Sydenham, in dropsies; and is still a popular remedy with the poor, in some parts of our own country. Its action, however, both as an emetic and cathartic, is occasionally so violent, that inflammation of the intestines has been produced, and death has been the result. The leaves and young buds are also purgative; and from the berries, which are supposed to be diaphoretic, a laxative syrup (olim *Rob Sambuci*) is ordered, both by the Edinburgh and Dublin colleges.\* The flowers, which, according to Linneus,† are poisonous to peacocks, were formerly administered in the form of infusion for erysipelas, rheumatism, small-pox, &c.;‡ but whether the diaphoretic effects which followed their use, are to be attributed to them, or to the dilution, we cannot determine. Externally, they are still much recommended for their soothing effects; but we are still sceptical, and venture to assert, that both fomentations and ointments would be quite as efficacious without them: indeed, what is sold for Elder ointment in the shops, is seldom a genuine article.

ŒCONOMICAL USES.—The ripe berries are in considerable repute, as affording a domestic wine, which, if properly prepared, and drank warm, with spices and sugar, is an excellent cordial. For making this wine, Mrs. Hewlett, in a valuable work, entitled “*Cottage Comforts*,” which no cottager should be without, has given the following plain and wholesome directions: “If two gallons of wine are to be made, get one gallon of elderberries, and a quart of damsons, or sloes; boil them together in six quarts of water, for half an hour, breaking the fruit with a stick, flat at one end; run off the liquor, and squeeze the pulp through a sieve, or straining cloth; boil the liquor up again, with six pounds of coarse sugar, two ounces of ginger, two ounces of bruised allspice, and one ounce of hops; (the spice had better be loosely tied in a bit of muslin;) let this boil above half an hour; then pour it off; when quite cool, stir in a tea cup full of yeast, and cover it up to work. After two days, skim off the yeast, and put the wine into the barrel, and when it ceases to hiss, which will be in about a fortnight, paste a stiff brown paper over the bung-hole.

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\* The berries are said to be poisonous to poultry. *Barthol. Hist. anat. rarior. Cent. iv. p. 248.*

† *Flor. Suec. p. 79.*

‡ *Usitatissimi sunt flores sambuci in praxi medica, atque sub forma infusi frequenter bibuntur in Erysipelate, &c. (Bergius, fol. 245.)*

After this, it will be fit for use in about eight weeks, but will keep eight years, if required. The bag of spice may be dropped in at the bung hole, having a string fastened outside, which shall keep it from reaching the bottom of the barrel."

The wood of the common Elder is commonly made into skewers for butchers, tops for angling rods, and needles for weaving nets. The pith, being very light, is cut into balls used in electrical experiments.

**DOSE.**—The dose of the bark is from grs. x, to ʒss.; or half an ounce may be boiled in a pint and a half of water, down to twelve ounces, and divided into three equal doses.

**OFF. PREP.**—Succus spissatus Sambuci nigrae, E. D.

Unguentum Sambuci, L. D.

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#### SAMBUCUS EBULUS.

Besides the *nigra*, there is another species, the *Sambucus Ebulus*, Dwarf Elder, or Danewort, which is not uncommon throughout Europe, in waste places, and by the sides of hedges; occasionally occurring in Great Britain, and flowering in July. It grows in many places near London, and is figured in "*English Botany*," v. 7, t. 475. It may be readily distinguished from the other species, by its low annual, herbaceous stem, leafy stipulas, cymes with three principal branches, and its beautiful, dull purplish, or lilac-coloured flowers. The whole plant, with the exception of the flowers, has a nauseous, acrid, bitter taste, and a disagreeable smell. Every part of the plant, especially the bark, is violently cathartic, and sometimes emetic; being stronger and more unpleasant than the common elder. The berries are likewise purgative, but in a lesser degree. A syrup prepared from them has been given to the quantity of an ounce, as a laxative; in smaller doses, it is said by Haller, to be used in Switzerland as a deobstruent in chronic diseases. By some, the *Sambucus Ebulus* has even been regarded as an acrid poison.







*Rhus toxicodendron?*

G. Reid del.

Walden sc.

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## RHUS TOXICODENDRON.

*Trailing Sumach. Pubescent Poison Oak.*

Class V. PENTANDRIA.—Order III. TRIGYNIA.

Nat. Ord. DUMOSÆ, Lin. TEREBINTACEÆ, Juss.

GEN. CHAR. *Calyx* 5-parted. *Petals* 5. *Berry* superior, with one seed.SPEC. CHAR. *Leaves* ternate ; leaflets petioled, ovate, sinuated, angular, pubescent underneath. *Stem* creeping.Syn.—*Hedera trifolia virginiensis*. *Park. Theatr.* 679. 5.*Arbor trifolia venenata virginiana*, folio hirsuto. *Raii. Hist.* 1799.*Edera trifolia canadensis*. *Cornut. Canad.* 96. t. 97 ; *Barr. Ic.* 228.*Vitis canadensis*. *Munting. Phyt.* p. 239. t. 60.*Rhus radicans*. *Willd. Sp. Pl.* 1. p. 1481 ; *Hort. Kew.* 2. p. 163 ; *Kalm. Trav.* v. 1. 67. 177.*Toxicodendron triphyllum glabrum*. *Duham. Arb.* v. 2. 341. t. 98.*Rhus toxicodendron*. *Lin. Sp. Pl.* 381 ; *Willd.* 1. 1481 ; *Hort. Kew.* 2. p. 82 ; *Pursh. Fl. Amer. Sept.* 205 ; *Mich. Bor. Am.* 1. p. 183 ; *Stokes Bot. Mat. Med.* 2. 160 ; *Bot. Mag.* v. 43. t. 1806.FOREIGN.—*Toxicodendron* ; *Herbe à la puce*, Fr. ; *Rus Tossicodendro*, It. ; *Giftsumach*, Ger.

THE Trailing Sumach, or Poison Oak, as it is sometimes improperly called, is a common tree in woods, fields, and hedges, in North America, from Canada to Georgia ; flowering in June and July. It is assumed by many botanists that this is a distinct species from the *Rhus radicans*. Linneus is of this opinion, and founds his distinction on the leaves of the latter being naked and entire, while they are pubescent and angular in the former. Michaux and Pursh, who had more extensive opportunities for observation, consider the two as mere local varieties, while Elliot and Nuttall agree in opinion with Linneus. We consider, however, that the question in favour of their identity has been set at rest by Professor Bigelow, who

states, "among the plants which grow abundantly round Boston, I have frequently observed individual shoots from the same stock having the characters of both varieties. I have also observed, that young plants of *Rhus radicans* frequently do not put out rooting fibres until they are several years old, and that they seem, in this respect, to be considerably influenced by the contiguity of supporting objects." The drawing was taken from a plant in the garden of the Society of Apothecaries, Chelsea.

The root sends up many stems, which divide into slender, woody branches, and are covered with a brown bark. These stems seldom grow erect, but trail along the ground, and when they meet with support will ascend a wall, or climb like ivy to the tops of the loftiest trees. The leaves are placed alternately, supported on long petioles; and are composed of three dark green, shining leaflets, about three inches long and one and a half broad. The leaflets are of an ovate, or rhomboidal form, pointed, strongly veined, smooth on the upper surface, but always more or less downy beneath, at least about the ribs, and sometimes quite covered with down at the back, their margin almost entire, but most generally, in the downy variety, strongly sinuated, cut, or lobed: the two lateral leaflets are considerably the smallest of the three, and nearly sessile. The flowers are produced in simple axillary racemes on short peduncles, and are of an herbaceous colour, and sometimes diœcious. The calyx is divided into five deep, erect, permanent segments. The petals are also five, ovate, pointed, and spreading. The filaments are five, shorter than the corolla, bearing small roundish anthers. The germen is superior, roundish, supporting a very short style with three small heart-shaped stigmas. The fruit is a globular striated, whitish berry, containing a single, roundish, bony seed. Fig. (a) exhibits a flower a little magnified; (b) the calyx; (c) the germen and style; (d) the fruit; (e) a leaf in outline, to show the pubescence on the under surface.

QUALITIES AND CHEMICAL PROPERTIES.—"If a leaf or stem of this plant be broken off," says Prof. Bigelow, "a yellowish milky juice immediately exudes from the wounded extre-



mity. After a short exposure to the air, it becomes of a black colour, and does not again change. This juice, applied to linen, forms one of the most perfect kinds of indelible ink. It does not fade from age, washing, or exposure to common chemical agents. I have repeatedly, when in the country, marked my wristband with spots of this juice. The stain was at first faint and hardly perceptible, but in fifteen minutes became black, and was never afterwards eradicated by washing, but continued to grow darker, as long as the linen lasted."

Dr. J. Horsefield, in a valuable dissertation on the American species of *Rhus*, states various unsuccessful experiments he made with a view to ascertain the nature of this colouring principle, and the means of fixing it on stuffs. He found that the juice expressed from the pounded leaves did not produce the black colour, and that strong decoctions of the plant, impregnated with various chemical mordants, produced nothing more than a dull yellow, brownish, or fawn colour. The reason of this is, that the colouring principle does not reside in the sap, but in the *succus proprius*, or in the peculiar juice of the plant, which is secreted in small quantity, and is wholly insoluble in water,—a circumstance which contributes to the permanency of its colour, at the same time that it renders some other medium necessary for its solution.

With a view to ascertain the proper menstruum, Dr. Bigelow subjected pieces of cloth stained with it, to the action of various chemical agents. Water, at various temperatures, assisted by soap and alkali, produced no change in its colour. Alcohol, both cold and boiling, was equally ineffectual. A portion of the cloth, digested several hours in cold ether, with occasional agitation, was hardly altered in appearance. Sulphuric acid reddened the spots, but scarcely rendered them fainter. The fumes of chlorine, which bleached vegetable leaves and bits of calico in the same vessel, excited no effect on this colour. Boiling ether is the proper solvent of this juice. A piece of linen spotted with it, was immersed in ether, and placed over a lamp; as soon as the fluid boiled, the spot began to grow fainter, and in a few minutes was wholly discharged, the ether acquiring from it a

dark colour. This black juice, in common with that of the *Rhus vernix*, appears to be a distinct principle in vegetable chemistry.

The leaves and bark are astringent to the taste; this quality appearing to depend on gallic acid, rather than on tannin.

*Sumach*, used in the arts of tanning and dyeing, is the produce of the *Rhus coriaria*, which grows naturally in Syria, Palestine, Spain, and Portugal. It is also cultivated in the neighbourhood of Montpellier, where it is called *rédoul*, or *roudou*.

*Copal*, improperly called *gum copal*, is said to be furnished by the *Rhus copallinum*. There are, however, several kinds met with in commerce, which are supposed to be the produce of some species of *Hymenia*.

**POISONOUS EFFECTS.**—An acrid poison exists in the juice of many species of the *Rhus* genus. The *Rhus pumilum* and *R. typhinum* produce ill effects in a greater or lesser degree; and these plants appear to be less injurious than the *R. vernix*. The effects described, appear to be produced in particular constitutions only, as this plant (assuming it to be identical with the *R. radicans*) is so commonly diffused by road-sides and near habitations, in America, that its ill consequences would be extremely frequent, were all individuals susceptible to its impressions. Those persons who are constitutionally liable to the influence of this poison experience a violent itching, redness, and tumefaction of the affected parts, particularly of the face: succeeded by vesications, aggravated swelling, heat, pain, and fever. When the disease is at its height, the skin becomes covered with a crust, and the swelling is so great as in many instances to close the eyes, and almost obliterate the features of the face. The symptoms begin in a few hours after the exposure, and are commonly at the height on the fourth or fifth day; after which, desquamation begins to take place, and the distress, in most instances, to diminish. Sometimes the eruption is less general, and confines itself to the part which has been exposed to contact with the poison. An acquaintance of Dr. Bigelow's marked his wristband with the fresh juice, to ob-



serve the effect of the colour. The next day his arm was covered with an eruption, from the wrist to the shoulder, but the disease did not extend further. It sometimes happens that the eruption continues for a longer time than that which has been stated, and that one set of vesications succeeds another, so as to protract the disease longer than usual. The symptoms of this malady, though very distressing, are rarely fatal; but death sometimes occurs in America.

**TREATMENT.**—The disease appears to be of an erysipelatous nature. The general antiphlogistic treatment is required, such as rest, low diet, and evacuations: saline purgatives are peculiarly useful, and bleeding is occasionally required. The extreme irritability and burning sensations may be greatly mitigated by opium. Cold applications, in the form of ice or cold water, are recommended by Dr. Horsefield, and are said to exert a remarkably beneficial effect. The acetate of lead in solution is also very useful.

Persons who have been in contact with this poison, should immediately examine their hands, clothes, &c. to see if there be any juice adhering to them. This should be rubbed off with some absorbent powder, as washing does not accomplish the purpose.

**MEDICAL PROPERTIES AND USES.**—This plant was introduced into practice by Dufrenoy, a physician at Valenciennes, about the year 1788. He has reported seven cases of obstinate herpetic eruptions which were cured by it. His attention was drawn to the subject by finding that a young man, who had a *dartre* on his wrist of six years standing, was cured by accidentally becoming poisoned with this plant. The same physician administered the extract in several cases of palsy, four of which he says were cured by it. Dr. Horsefield, in several instances, administered a strong infusion, in the dose of about a teacupful, to consumptive and anasarctous patients. It appeared to act as an immediate stimulant to the stomach, producing some uneasiness in that organ, also promoting perspiration and diuresis.

Dr. Alderson, of Hull, published an Essay on the *Rhus toxic-*

*codendron*, in which he asserts, that he gave the dried leaves of this plant in doses of half a grain, or a grain, three times a day, in several cases of paralysis. He says, that all his patients recovered, to a certain degree, the use of their limbs. The first symptom of amendment was an unpleasant feeling of prickling or twitching in the affected limbs ; which appears analogous to the sensation produced by *Strychnine*. Subsequent experiments by no means confirm the good opinion which Dr. Alderson endeavoured to impress on the public ; but we conceive that it is highly culpable to abandon a sufferer to his lamentable fate, without trying the efficacy of a medicine which can easily be obtained. We have always experienced the greatest facility in procuring specimens of plants from Mr. Anderson, of the Apothecaries garden at Chelsea; and feel assured that the Worshipful Company are well satisfied to have the profession supplied with small quantities of any of their productions, when they cannot be procured elsewhere.

Dr. Givensius has administered the leaves of this species of *Rhus*, in doses of one-fourth of a grain, twice a day, in five cases of paralysis, four of which were cured.\*

In persons not constitutionally susceptible to the eruptive disease, it is probably an inert medicine, as Dufrenoy's patients sometimes carried the dose as high as an ounce of the extract, three times a day, without perceiving any effect from it.

The external application of this family of plants might, no doubt, be used in certain cases as a stimulant, with great effect ; indeed, Dr. Pierson, of the United States, was relieved from dyspeptic symptoms and chronic inflammation of the eyes, after having been powerfully affected by exhalations from the *Rhus vernix*. But as the effects would not be certain, nor manageable in extent, the prospect of benefit is scarcely sufficient to justify the risk of the evil.

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\* *Bulletin des Sciences Medicales*. Sept. 1825.





# Linum



*usitatissimum.*



*catharticum*





## LINUM USITATISSIMUM.

*Common Flax.**Class V. PENTANDRIA.—Order V. PENTAGYNIA.**Nat. Ord. GRUINALES, Lin. Allied to CARYOPHYLLÆ,  
Juss. LINEÆ, De Cand.***GEN. CHAR.** *Corolla 5-petalled. Capsule globose,  
10-valved, 10-celled. Seed solitary, ovate, com-  
pressed.**\* Leaves alternate.***SPEC. CHAR.** *Calyx-leaves ovate, acute, 3-nerved.  
Petals crenate. Leaves lanceolate, alternate. Stem  
mostly solitary.**Syn.—Linum sylvestre sativum plane referens, Raii Syn. 362.**Linum sativum, Ger. Em. 556; Park. Theatr. 1335.**Linum, n. 836. Hall. Hist. v. 1. 373.**β Linum, Camer. Epit. 200. f.; Bauh. Hist. v. 3. 450. f.; Fuchs. Hist.  
471. f.; Raii Syn. 362.**Linum usitatissimum, Lin. Sp. Pl. 397; Willd. v. 1. 1533; Fl. Brit. 342;  
Eng. Bot. v. 19. t. 1357; Curt. Lond. fasc. 5. t. 22. Woodv. t. 111;  
Hook. Scot. 97; Stokes, v. 2. 186.***PROVINCIALY.**—*Lint; Lyne; Flax.***FOREIGN.**—*Lin, Grains de Lin, Fr.; Lino domestico, Seni de Lino, It.; Laxor, Sp.  
Flacks, Lein, Leinsaamen, Flachsamen, Ger.; Vlasch, Dut.; Len, Lan,  
Russ.; Busrue, Arab.; Tisi, Hind.*

OF the genus *Linum*, more than thirty species have been described by botanical writers. Linneus, in the 14th edition of his *Systema Vegetabilium*, enumerates twenty-two; besides which, four, not mentioned by him, occur in the *Hortus Kew-*

ensis, and one in the *Prodromus Floræ Græcæ*. To this list belongs the *L. Radiola*, which is the *Radiola millegrana* of Smith. The genus is divided into two sections, the first having opposite, the second, alternate leaves. To the first section belongs the *Linum Usitatissimum*, the subject of this article. It is an annual plant, growing occasionally in corn-fields, and in sandy pastures ; flowering in July, and ripening its seeds in September.

Common flax has a small, fibrous root ; a round, slender, smooth, leafy, and branched stem, which rises to the height of two feet. The leaves are scattered, small, lanceolate, entire, sessile, three-nerved, alternate, and, on the upper part of the stem, of a glaucous, or sea-green colour. The flowers are numerous, collected in a corymbose pannicle, erect, and supported on longish footstalks. The calyx is composed of five lanceolate, erect, permanent, 3-ribbed leaflets. The corolla is funnel-shaped, and consists of five notched, sky-blue, shining, veiny, oblong petals, which are narrow below, and gradually grow broader upwards. The filaments are five, awl-shaped, erect, the length of the calyx, and inserted into an annular receptacle, with simple sagittated anthers. The germen is superior, ovate, and surmounted by five blue, capillary, spreading, undivided, bluntish stigmas, the length of the stamens. The fruit is a globular capsule, about the size of a pea, with ten cells and ten valves united in pairs, and crowned with a sharp spine. In each cell is lodged a single elliptical, pointed, smooth, and shining seed.—Fig. (*a*) represents the calyx ; (*b*) the stamens ; (*c*) the germen and styles.

The generic name, *Linum*, retained from the ancient Greek authors, is supposed to be derived from *λινεω*, to hold ; the fibres of this plant being so remarkable for their tenacity, that its herbage has always been in the highest estimation in the manufacture of linen cloth.

Flax is mentioned in the ninth chapter of *Exodus*, verse 31, as growing in Egypt ; and it is still found in those parts which are inundated by the Nile. It grows also in many of the counties of England ; and as we have no intimation of its first introduction, it has been supposed to be an indigenous plant, by some of our botanists. Although its utility has been known from



time immemorial, it appears probable that the knowledge of its applicability to the purposes of society, was ascertained long after cotton had been employed; as the vestments of mummies are composed of the latter material, which in its natural state, even from its very appearance, would be likely to have struck the Egyptians as a structure that might easily be wrought into garments. In the simplicity of former times, when families provided themselves with most of the conveniences and necessities of life, every garden supplied a sufficient quantity of hemp and flax; but although we make clothing from the stalks of the latter, and draw valuable oil from its seeds, which likewise serve as food for our cattle, little of it is now cultivated in England; wheat yielding crops much more profitable. The maceration or steeping, necessary to separate its fibres, renders water so very offensive, that in the reigns of Henry the Eighth, and James the Sixth of Scotland, acts were passed to prevent this process from being carried on in any river, stream, or pond, where cattle drank, under the penalty of twenty shillings.

QUALITIES AND CHEMICAL PROPERTIES.—The cuticle of the seeds of flax, commonly called *linseed*, yields a mucilage to boiling water, which is inodorous, and has but little taste. By *expression*, a bland, inodorous, sweetish oil is obtained, the specific gravity of which is 939.\* It is much more soluble in alcohol than olive-oil; and as it is one of the *drying oils*,† it loses its unctuousity after proper preparation, and is used for varnishes, and printer's ink. It is not congealed excepting by a cold below 0° of Fahrenheit, and boils at 600° of the same scale. Although the pharmacopœia orders this oil to be obtained by expression, heat is generally employed, which renders it disagreeable both in

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\* Prof. Thomson's System of Chemistry.

† When fixed oils are exposed to the open air, or to oxygen gas, they undergo different changes according to the oil. All of them, as far as experience has gone, have the property of absorbing oxygen; and by uniting with it, they become more and more viscid, and terminate at last in a solid state, being apparently saturated with oxygen. Some retain their transparency after they have become solid; while others become opaque, and assume the appearance of tallow, or wax. Those that remain transparent are called *drying oils*, while those that become opaque are called *fat oils*.

taste and smell : it is therefore seldom employed as an internal remedy. Linseed contains about one-fifth of mucilage, and one-sixth of oil. The cake remaining after the expression of the latter, is used for fattening cattle, by the name of oil-cake.

MEDICAL PROPERTIES AND USES.—Woodville asserts that linseed affords but little nourishment, and that when taken as food it is found to impair the stomach. These circumstances were noticed by Galen.\* Ray † also adverts to them ; and Professor Fritze, in his Medical Annals, states, that vegetable mucilage, when used as a principal article of diet, relaxes the organs of digestion, and produces a viscid, slimy mucus, and a morbid acid in the primæ viæ—effects which may be obviated, as Dr. Paris has well shown, ‡ by the addition of bitter extractive.

As we have already stated, the oil is little used as a demulcent ; but if it can be obtained good, we can recommend it to be given in doses of one table-spoonful as an excellent corrector of habitual costiveness ; and if a drachm of tincture of rhubarb be added to it, it will generally agree with the most fastidious stomachs. The decoction of the seeds contains a portion of oil diffused in the mucilage ; it is, therefore, an useful ingredient for injections, when we have abrasion or ulceration of the mucous membrane of the intestines : and the infusion is a valuable drink for persons who are suffering from irritation of the fauces ; it is also much employed for diseases of the urinary organs, on a false principle we conceive. § We need scarcely state, that one of our most useful and common poultices is made with linseed-meal and boiling water.

OFF. PREP.—Infusum Lini. L.

Oleum Lini. L. E. D.

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\* Stomacho autem noxium est, et cocta difficile, exiguumque alimentum corpori exhibet.—*De Aliment. Facul. lib. secundus, cap. 32.*

† Quod paucis abhinc annis Middleburgi in Zelandia (inquit Tragus) animadverti potuit, cum propter frumenti aliarumque frugum inopiam plerique ex civibus pane et cibus ex hoc coctis vescerentur. Distenta enim his valde citò hypochondria fuerunt, et facies aliæque partes tumidæ factæ, quorum non pauci sic affecti etiam mortui sunt.—*Hist. Plant. p. 1073.*

‡ Pharmacologia. Edit. 5. vol. i. p. 144.

§ See our observations on this subject under *Althæa Officinalis. Art. 51.*



LINUM CATHARTICUM.—*Purging Flax, or Mill-Mountain.*

Pl. 61.

\*\* *Leaves opposite.*

SPEC. CHAR. *Leaves* opposite, obovate-lanceolate.

*Stem* pannicked above with dichotomous branches.

*Petals* acute.

Syn.—*Linum sylvestre catharticum*, Raii Syn. 362; Ger. Em. 560. f.

*Linum pratense*, flosculis exiguis, Bauh. Pin. 214.

*Chamælinum Clusii* flore albo, sive *Linum sylvestre catharticum*, Park. 1336.

*Linum*, n. 839. Hall. Hist. v. 1. 374.

*Linum catharticum*, Lin. Sp. Pl. 401; Willd. v. 1. 1541; Fl. Brit. 344; 344; Eng. Bot. v. 6. t. 382; Curt. Lond. fasc. 3. t. 19; Hook. Scot. 97; Stokes, v. 2. 188.

PROVINCIALY.—*Wild Dwarf Flax*; *Mountain Flax*; *Mill-mountain*; *Meadow Flax*; *Two-leaved Spurrey*; *Chamælinum*, or *Ground Flax*.

FOREIGN.—*Lin Sauvage*, *Lin purgatif*, Fr.; *Lino salvatico*, It.: *Purgierend flachs*, Ger.

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THIS small, delicate species of flax, belongs to the second section of the genus *Linum*, from having opposite leaves. It is an indigenous annual, growing in dry meadows, and pastures; flowering from the end of May, to August. Dr. Milne found it plentifully in waste ground opposite the chalk-pits at Greenhithe; at Gravesend, by the river-side; and in the meadows betwixt Chatham and Gillingham. Dr. Greville, in his “*Flora Edinensis*,” says, it occurs abundantly in the King’s Park; and between Burntisland and Pettycur, in Fifeshire.

Mountain-flax rises from a very small, tapering, woody root, with several slender, straight, smooth stems, to the height of a span and upwards. The stem at the lower part is simple, but above pannicked, dichotomous, and spreading. The leaves are small, bright green, elliptical, stand opposite in pairs, and have no foot-stalks; those next the root are rounded, and terminate bluntly; whilst on the stem they are lanceolate, smooth, and pointed. The flowers are small, white, drooping before expan-

sion, and sustained on long pedicles at the extremity of the stalks. The leaves of the calyx are pointed, serrated, and one-ribbed; the petals acute, entire, white, and spreading; the filaments are ranged in a circle round the lower part of the germen, which is ovate and furnished with capitate stigmas. The capsules resemble those of the preceding species, having the same number of valves or openings, and ten cells, each inclosing a small yellow, smooth, shining, oblong pointed seed.—Fig. (a) represents the calyx; (b) the stamens surrounding the germen; (c) the germen, and styles; (d) the capsule.

QUALITIES.—Purging-flax, when well dried, is of a bright green colour, and gives out its virtues to water, which becomes of a greenish brown colour, tastes rather warm, and somewhat bitter. The virtues of the plant appear to depend on extractive matter, and a bitter resin.

MEDICAL PROPERTIES.—Two ounces of this plant, infused in a pint of water, forms an infusion which we frequently administer to delicate subjects as a valuable indigenous, tonic purgative. A wine-glassful taken twice a-day generally succeeds in keeping the bowels in a soluble condition; but if we want more decided effects, we may give it oftener, or combine it with neutral salts, or rhubarb. It sometimes produces a little griping, which is obviated by a little compound spirit of ammonia. Mr. Houlton has prepared an extract, which operates rather severely in doses of ten grains. As the plant grows so abundantly in our own country, why has it fallen, so undeservedly, into disuse? Both Gerarde and Lewis strongly recommend it; and the latter states, that it occasionally acts as a diuretic.







*Allium sativum.*

G. Reid Del.

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## CXI

### ALLIUM SATIVUM.

*Common Garlic.*

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Class VI. HEXANDRIA.—Order I. MONOGYNIA.

Nat. Ord. SPATHACÆ, Lin. ASPHODELI, Juss.

GEN. CHAR. *Corolla* inferior, 6-parted, spreading.  
*Spathe* many-flowered. *Umbel* heaped together.  
*Stigma* acute. *Seeds* angular.

SPEC. CHAR. *Stem* leafy; leaves flat. *Umbel* bulbiferous; bulbs compound. *Stamens* 3-cleft.

Syn.—*Allium*, Ger. Em. 177; Park. Parad. t. 511. f. 6; Camer. Epit. 328.

*Allium vulgare et sativum*, Bauh. Pin. 73; Hist. 2. 554; Trag. Hist. 745;  
Raii Hist. 1125.

*Allium hortense*, Fuchs. Hist. 696. c. 282.

*Allium staminibus alterne trifidis*, &c. Hall. Opusc. 331. n. 1.

*Allium sativum*, Lin. Sp. Pl. 425; Willd. v. 2. 63; Woodv. v. 3. t. 108;  
Stokes v. 2. p. 216.

FOREIGN.—*Ail*, Fr.; *Ajo*, Sp.; *Alho*, Port.; *Gartenlauch*, Ger.; *Hvitlöken*, Swed.;  
*Tschenok*, Russ.; *Suón*, Chin.

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THE common or cultivated Garlic is a hardy, perennial, bulbiferous plant, growing naturally in Sicily and the south of France; flowering in July, and has been cultivated in this country since 1548. It shows the same propensity to form bulbs instead of flowers as the *A. scorodoprasum*, or Rocambole Garlic, which it also resembles in other respects.

The bulbs are composed of several oblong, subordinate bulbs, called cloves, of a pale colour internally, frequently tinged with purple on the outside, and inclosed in a common membrane, from the base of which proceed long white fibrous roots. Each clove being planted grows, and in one season attains the size and structure of the parent bulb. The stem is simple, erect, solid, and rises about two feet in height, surrounded with

many long, flat, linear, pointed leaves, of a yellowish green colour; and is terminated by a dense umbel, inclosed in a spathe containing both flowers and bulbs, which opens at one side and withers. The flowers are small, white, and destitute of a calyx: the corolla consists of six oblong petals, with tapering alternately 3-cleft filaments, shorter than the corolla, and supporting oblong, erect anthers: the germen is superior, short, angular, bearing a simple style, with a pointed stigma: the capsule is short, broad, 3-lobed and 3-celled, containing a few roundish, angular seeds. Fig. (a) represents a flower; (b) the bulb; (c) a subordinate bulb, or clove.

This plant is the *Εκοροδοη* of the Greeks, and is said to have been called *Εκοροδον*, *quasi*, *σκόριον ῥοδον*, *rudis rosa*, on account of its offensive odour. The Latin name *Allium* is supposed by some to have its origin from the Greek word *ἀνεσθαι*, *exilire*, to leap forth, from the rapidity of its growth. Amongst the Greeks, garlic was held in such abhorrence, that those who partook of it were regarded as profane. The Egyptians, however, worshipped it; and the Romans gave it to their labourers to impart strength, and to their soldiers to excite courage: their game cocks were also fed with it previously to fighting. From the following lines of Persius, it appears that it was sometimes offered to propitiate the Gods:—

“ Hinc grandes Galli, et cum Sistro lusca Sacerdos,  
Incussere Deos inflantes Corpora, si non  
Prædictum, ter mane, Caput gustaveris Alli.”

Let this be as it may, Horace having supped with Mæcenæ, found himself very ill, in consequence of partaking of a dish of herbs in which garlic had been put, and upon this writes an ode to his friend, part of which we cannot deny ourselves the pleasure of copying.

“ Parentis olim si quis impia manu  
Senile guttur fregerit;  
Edat cicutis allium nocentius.  
O dura messorum ilia!  
Quid hoc veneni sævit in præcerdis?  
Num viperinus his cruor  
Incoctas herbis me fefellit? an malas  
Canidia tractavit dapes?

\* \* \* \* \*



“ Nec tantus unquam siderum insedit vapor  
   Siticulosæ Apuliæ :  
 Nec munus humeris efficacis Herculis  
   Inarsit æstuosius.  
 At, si quid unquam tale concupiveris,  
   Jocose Mæcenas ; precor  
 Mauum puella suavio opponat tuo  
   Extrema et in sponda cubet.\*

Notwithstanding these denunciations of Horace, Olerius states that garlic was much used in his time by nobles and courtiers ; and Haller avers that the inhabitants of all countries are very fond of it. It appears, from Tusser, to have been cultivated in the time of Queen Mary ; who says in his twelfth verse for November—

“ Set garlicke and beans at St. Edmund the king.”

Garlic is now usually propagated by detaching the cloves, and planting them in February or March ; and in this way it seldom throws up a flower-stem. The soil should be light and dry ; the sets are placed about four inches asunder, and between two and three inches deep. About the middle of June the leaves are tied in knots, to prevent the stronger plants from spindling or running to flower, and to promote the swelling of the bulbs. The crop is dug up in autumn, when the leaves begin to wither ; the bulbs are then cleaned, tied in bunches, and hung in a dry room for use.

Besides the common garlic, the following species are frequently cultivated in our gardens for culinary and other domestic purposes.

1. *ALLIUM SCHÆNOPRASUM*. The *Cive*, or *Chive Garlic*, is a small plant, with a naked stalk seldom exceeding five or six inches in height ; cylindrical, hollow, somewhat tapering leaves,

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\* “ If there be such an unnatural, impious wretch upon earth, as has strangled his aged father with his own hands, let him, *by way of punishment*, eat garlic, which is a thousand times more poisonous than hemlock. The reaper’s stomach must be strong indeed to digest this nauseous plant. What poison is this consumes my entrails ? Was it the blood of vipers poured on these herbs that thus deceived me, or did Canidia touch the cursed dish, and impart her magic to it.

\* \* \* \* \*

“ Never did the violent heat of the Dog-star thus scorch dry Apulia ; nor could the gift sent to indefatigable Hercules kindle such a fire in his body. But, waggish sir, should you ever entertain a desire to eat garlic, may your mistress deny you a kiss, and lie at a distance from you all night long in the farthest part of the bed.

and simple stamens. It is a native of Britain, growing in meadows and pastures, but is not common : it occurs, according to Mr. Neill, among other places, in the south of Scotland, on low hills near Hawick ; and also in some parts of Westmoreland : it is figured in " English Botany," v. 34, t. 2441. The bulbs are very small and flat, and grow connected together in clusters. The young leaves are employed principally for soups, and as a salad ingredient, in the spring. Sometimes they are added as a seasoning to omelets ; and they are often eaten with bread and butter.

2. *ALLIUM ASCALONICUM*. The *Ascalonian Garlic*, or *Shallot*, with a naked stem, awl-shaped leaves, globose umbels, and 3-cleft stamens, is a perennial plant, a native of the Holy Land, where it was observed by Hasselquist. Eschalot (*Eschalotte*, Fr.) is the more correct appellation, the name being derived by some old authors, (Bauhin for example,) and is styled *cepa sterilis*, or barren onion, from the circumstance of its seldom sending up a flower-stalk. It was cultivated here in 1633. In size and general growth the plant resembles the Chive ; but it produces bulbous roots composed of cloves like garlic. These are used for culinary purposes in the manner of garlic ; but they are milder, and do not communicate to the breath the offensive flavour which garlic or even raw onions impart.

3. *ALLIUM SCORODOPRASUM*. *Rocamboles Garlic* ; *Ail d'Espagne* of the French, is a perennial plant, indigenous to Sweden and Denmark, and was cultivated by Gerarde in 1596. It has compound bulbs, like the common garlic, but the cloves are much smaller. It sends up a stem two feet high, which is bulbiferous ; the leaves are rather broad and crenate at the edges ; the flowers, which are collected in a sort of globular head, are of a pale purple colour. The cloves are used in the same manner as garlic or shallot, and nearly for the same purposes.

4. *ALLIUM FISTULOSUM*. *Cibol* or *Welsh Onion* ; *Le Ciboule de St. Jaques* of the French, is a perennial plant, a native of Siberia. It appears to have been cultivated in 1629, but it was known a long time previously. It produces no bulbs, but the fistular leaves, and the lower part of the stems, are much used in salads, in the spring months.



**QUALITIES AND CHEMICAL PROPERTIES.**—Every part of the common garlic has an offensive odour, and a biting acrimonious taste, particularly the bulbs, which when dried lose nearly two thirds of their weight. The expressed juice is of a thick consistence like mucilage, and slightly reddens vegetable blues. When diluted with water and filtered, it yields flakes of albumen when boiled. The residue consists chiefly of mucilage, of which garlic yields a very great proportion, and of extractive. This last is somewhat acrid in its nature. When garlic is distilled with water, it yields a portion of yellow-coloured volatile oil, at first lighter than water, but gradually becoming heavier as the distillation advances. To this oil garlic owes its most remarkable properties. Its taste is very acrid, and its smell strong. When applied to the skin, it produces an irritation not inferior to cantharides, and like it, might be employed to blister the skin. When triturated with oxide of iron, it immediately strikes with it a black colour; but it has no effect upon any other metallic oxide. When garlic is heated with alcohol, the liquid assumes a reddish-yellow colour, and leaves, when evaporated, a brown extract, very acrid, which extracts moisture from the air. When garlic is distilled, it yields first a liquid slightly coloured, and having a very acrid taste; then a thick brown oil, and abundance of inflammable air and carbonic acid. The liquid in the receiver emits the smell of ammonia when mixed with lime. When 40.320 parts of garlic were incinerated, they left 4896 parts of ashes, or about one-eighth of the original weight. From 172 parts of pure ashes Cadet obtained the following substances :—

Potash . . . . .	58.0
Sulphate of soda, with some muriate	33.0
Alumina . . . . .	2.0
Phosphate of lime . . . . .	15.6
Oxide of iron . . . . .	1.5
Magnesia . . . . .	9.0
Lime . . . . .	14.0
Silica . . . . .	8.0
<hr/>	
	141.1

From 1406 parts of fresh garlic he obtained—

Mucilage . . . . .	520
Albumen . . . . .	37
Fibrous matter . . . . .	48
Water, by estimate . . . . .	801
	<hr/>
	1406

Bouillon-Lagrange has detected in garlic, besides the acrid oil, a quantity of sulphur, starch, and saccharine matter.

MEDICAL PROPERTIES AND USES.—Garlic resembles the squill in its medical properties, being diuretic, diaphoretic, and expectorant. Cullen asserts that it acts as a stimulus more promptly and energetically than any other, and it is much commended by Bergius for its virtues in agues; in dropsical affections by Sydenham, and in scurvy by Dr. Lind. It has long been celebrated as a domestic remedy for worms; and instances are related by Mosentein and Tissot of its expelling tænia; the usual method of administering it being to give the expressed juice in a little milk, or to boil it with sugar to form a syrup; it is however rarely used in modern practice, having given place to remedies of more decided utility, and less nauseous to the taste. In France, the expressed juice diluted, is occasionally injected into the rectum, to dislodge ascarides; and is much employed in asthma, catarrh, and torpor of the abdominal viscera. Sydenham extols the application of garlic to the soles of the feet, as an efficacious method of producing revulsion from the head; and it is occasionally applied in the form of poultice to boils and indolent tumours. Given in considerable doses, garlic is capable of producing inflammation of the alimentary canal; but taken in moderation, is considered highly beneficial to soldiers and sailors when exposed to a damp atmosphere; and is recommended to make part of the regimen of those who are exposed to the plague and other pestilential disorders. Celsus recommends garlic mixed with rue, as an external application against the bites of scorpions and venomous spiders: “Et ad scorpionis autem et ad aranei ictum, allium cum ruta recte miscetur, ex oleoque contritum, superimponitur.”—*De Med. l. v. c. xxv. 6.*

Dr. Paris asserts that the most powerful antidote to the fla-



vour of this tribe of vegetables on the aromatic leaves and seeds of the *umbelliferae* ; and if leek or garlic be mixed with a combination of aromatic ingredients, their virulence will be greatly mitigated and corrected : a fact which did not escape the observation of the husbandman in Virgil :

“ Allia, Serpyllumque, herbas contundit olentes.”

*Eclog.* 2. line 11.

Menander also states that *baked beet-root* entirely takes off the odour of garlic.

OFF. PREP.—Syrupus allii. *D.*

TAYLOR'S REMEDY FOR DEAFNESS, is garlic infused in oil of almonds, and coloured by alkanet root.

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## ALLIUM PORRUM.—*The Leek.*

SPEC. CHAR. *Umbel* globose. *Stem* smooth. *Leaves* flat. Three outer *petals* scabrous on the outside. *Stamens* 3-cleft. *Bulb* coated.

Syn.—Porrum capitatum, *Ger. Em.* 174 ; *Fuchs. Hist.* 605.

Porrum, *Bauh. Hist.* v. 2. 551 ; *Camer. Epit.* 321 ; *Park. t.* 511. f. 5 ; *Raii Hist.* 1126.

Allium porrum, *Lin. Sp. Pl.* 423 ; *Willd.* v. 2. p. 64 ; *Hall. Helv. n.* 1217 ; *Plenck. Icon. t.* 253 ; *Stokes, v. 2. p.* 227.

FOREIGN.—Poireau, Fr. ; Porro, It. ; Spanische lauch, Ger.

THE Leek is a biennial plant, a native of Switzerland, flowering in May. It is mentioned by Tusser in 1562, but was no doubt known in this country long before that date. There are three varieties : the narrow-leaved, or Flanders leek ; the Scotch, or flag leek, sometimes called the Musselburgh leek ; and the broad-leaved, or tall London leek. The latter variety is often cultivated ; but for exposed situations, Mr. Patrick Neill recommends the Scotch leek, being much the more hardy.

The bulbs are white, globose, composed of concentric circles, on a radical plate, from which spring fibrous roots. The stem,

which is an erect scape, rises three feet, and is leafy at bottom ; the leaves flat, linear pointed, an inch wide. The flowers are in close, very large spherical umbels, on purplish peduncles. The corolla is bell-shaped ; petals purplish, rough-keeled, the three outer oblong, lanceolate, glabrous at the margin, inner oblong, broader ; stamens rather longer than the corolla, three of them toothed at the margin ; germen superior ; style simple, stigma acute.

QUALITIES.—The scent of the whole plant is pungent, and its taste extremely acrimonious. By boiling, the essential oil is dissipated on which its active properties depends, and it becomes comparatively bland and insipid.

MEDICAL PROPERTIES AND USES.—Its medical uses are similar to those of garlic, but less energetic. Its great acrimony renders it stimulant, and it is probably, as has been said, diuretic ; hence the expressed juice is sometimes given with advantage in dropsical cases, in doses from ʒß. to ʒij., mixed with mucilage or syrup. The whole plant is used as a pot herb ; but the blanched stem is most esteemed. It is in season in winter and spring, and is chiefly used in soups and for stewing.

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### ALLIUM CEPA.—*Common Onion.*

SPEC. CHAR.—*Scape* naked, tubular, swelling out below, longer than the leaves. *Leaves* cylindrical, smooth. *Umbel* subglobose. Petals nearly equal.

*Syn.*—*Cepa vulgaris*, *Raii Hist.* 1116.

*Cepa alba*, *Ger. Em.* 169.

*Allium cepa*, *Lin. Sp. Pl.* 431 ; *Willd. v. 2. p.* 80 ; *Plenck, Icon.* t. 255.

FOREIGN.—*Ognon*, Fr. ; *Cipolla*, It. ; *Cebolla*, Sp. ; *Swiebel*, Ger. ; *Pecdj*, Hind.

THE common Onion is a biennial plant, too well known by its fistular leaves, swelling stalk, and bulbous root, to require a particular description. Neither the native country of the plant, nor



the date of its introduction, are known. The bulb is globose, simple, and formed of concentric circles. The stem is naked, swelling at the base, with smooth tubular spreading pointed leaves sheathing at the base. The flowers appear in a close head or capital, in June and July.

The principal varieties in cultivation are the Strasburgh, or common oval; the Spanish, silver skinned, and red skinned; the globe onion, the Reading, and the Portugal. The *tree onion*, which is figured and described in the "Botanical Magazine," t. 1469, as a variety of the *Allium cepa* is cultivated in some gardens. The *scallion* is another variety of *A. cepa*, distinguished by the circumstance of its never forming a bulb at the root. Miller states, that the scallion is propagated by parting the roots in autumn; that it grows in almost any soil or situation, and resists our severest winters. He adds, that being green and fit for use very early in the spring, it is worthy of a place in all kitchen gardens. It was, indeed, formerly much in use; but the true scallion is very little known; and is said to exist only in a few gardens, where it is preserved by way of curiosity. The Egyptian onion, or Ground onion, has been considered another variety of *Allium cepa*, but according to Mr. Neill is more nearly allied to the *A. fistulosum*. Instead of producing bulbs at the top of the stem, like the former, this plant produces clusters at the surface of the ground in the manner of potatoes. It was brought from Egypt, it is believed, during the occupation of that country by the British army, and was first cultivated in the neighbourhood of Edinburgh in 1811, by Lieut. Burn of the Royal Navy. In quality the ground onion seems not inferior to the common onion, and it more speedily reaches maturity, being planted in April, and reaped in August and September.

**QUALITIES.**—The sensible, as well as chemical qualities of the onion resemble those of garlic; but are much weaker. On distillation it yields a small portion of acrid volatile essential oil. combined with sulphur; and the recent juice contains sugar, mucus, phosphoric acid, phosphate of lime, and citrate of lime.

**MEDICAL PROPERTIES AND USES.**—The onion is chiefly cultivated for culinary purposes. The root affords a considerable

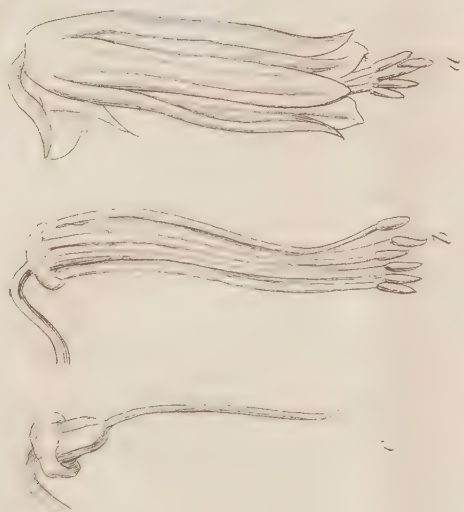
proportion of alimentary matter, principally mucilage, particularly when boiled ; but in dyspeptic habits it occasions flatulence, thirst, and headache. The root is the most active part, and is stimulant, diuretic, and expectorant. “ On account of the free phosphoric acid it contains, the juice is supposed to be useful in caculous cases, as it dissolves phosphate of lime out of the body. Onions are, however, scarcely ever employed, except externally, as suppurative cataplasms ; for which purpose they are generally roasted, split, and applied to tumours.”











*Hoe vulgaris.*







## ALOE VULGARIS.

*Yellow-flowered Aloe.**Class VI. HEXANDRIA.—Order I. MONOGYNIA.**Nat. Ord. LILIACEÆ, CORONARIÆ, Lin. ASPHODELI, Juss.*

GEN. CHAR. *Corolla* tubular, border spreading, 6-cleft, bottom nectariferous. *Filaments* inserted into the receptacle. *Capsule* superior, oblong, 3-celled. *Seeds* several, angular.

SPEC. CHAR. *Leaves* sword-shaped, toothed, upright. *Stem* branched. *Flowers* yellow, in a dense panicle.

*Syn.*—*Aloe*, *Trag. Hist.* 932; *Fuchs. Hist. v. 2.* 160; *Matth. Valgr. v. 2.* 45, 46; *Camer. Epit.* 430.

*Aloe vulgaris*, *Bauh. Pin.* 286; *Tourn. Inst.* 366; *De Candolle Pl. Grasses*, 27, *cum icone.* *Ait. Hort. Kew. ed. 2. v. 2.* 292; *Ger. Em.* 507; *Fl. Græc. Sibth. v. iv. p. 34. t. 341.*

*Aloe perfoliata* π, vera, *Lin. Sp. Pl.* 458.

*Aloe perfoliata* λ, vera, *Willd. Sp. Pl. v. 2.* 186.

*Aloe barbadensis*, *Haworth in Trans. of Lin. Soc. v. 7.* 19.

Αλοη, *Dios. lib. 3. cap.* 25.

THE *Aloe vulgaris*, which is the species that Sloane describes in his History of Jamaica, as producing the Barbadoes extract, is a native of the Levant and Barbary. Though generally known under the name of Barbadoes Aloe, it is said to be very common in the West India islands, where the plants are propagated on the poorest soil for the purpose of obtaining the Hepatic aloes of the shops. It is the αλοη of the ancient Greeks, and was found by Dr. Sibthorpe growing spontaneously in the island of Cyprus.

The stem is short, thick, shrubby, branched, and like the rest of the plant, abounding in a clammy, bitter, fetid, yellowish juice. The leaves are about four inches broad at their base,

crowded sessile, nearly erect, or somewhat spreading, a foot long, lanceolate, acute, fleshy, smooth, succulent, concave above, of a seagreen colour, and when young, spotted with white. The flower stem rises about three feet in height; it is round, thick, erect, smooth, of a brownish purple colour, branched at top, and terminated by the flowers which form a slender, loose spike, and are of a bright yellow colour. The flowers are numerous, spreading horizontally in an elegant spike, and stand on short, smooth footstalks, each flower being accompanied by a single bractea. The bracteas attached to the flower stems are triangular, membranaceous, and of a deep brown colour. The corolla is 1-petalled, deeply 6-cleft, cylindrical and oblong; the outer segments are larger than the inner, ovate, blunt, and spreading at the border. The stamens are thread-shaped, as long as the corolla, or longer, inserted into the receptacle, and furnished with oblong, incumbent anthers. The germen is oblong-ovate, angular, bearing a style nearly of the length and shape of the stamens, with a small, simple stigma. This species and *stricta*, are the softest and most succulent of all the Aloes; the former is the only species whose flowers are yellow. Fig. (a) represents a flower with its bractea; (c) the pistil with the base of the corolla; (b) the same with the corolla removed.







*Aloe Socotrina* L.



## ALOE SOCOTRINA.

*Socotrine Aloe.*

SPEC. CHAR. *Leaves* sword-shaped, somewhat curved at the apex, those of the stem sheathing; marginal teeth small, white, numerous. *Flowers* in spikes, drooping.

Syn.—*Aloe vera*, Mill. Dict. n. 15.

*Aloe rubescens*, Plante's Grasses, p. 15, cum icone mala.

*Aloe americana ananifolia* floribus suave-rubentibus, Pluk. Phyt. t. 240.

*Aloe vera minor*, Munting. Aloidar. cum icone.

*Aloe perfoliata socotrina*, Ait. Kew. 1. 466; Bot. Mag. v. 14. t. 472; Stokes v. 2. p. 269.

*Aloe socotrina*, Haworth in Trans. of Lin. Soc. v. 7; Woodv. Med. Bot. v. 4. ed. 2d. t. 260.

FOREIGN.—*Suc d'Aloes*, Fr.; *Aloe*, It. and Sp.; *Glausinde Aloe*, Ger.; *Elwa*, Hind.

THE Socotrine Aloe is a perennial plant, with a strong fibrous root; flowering in winter and spring. The stem is round, smooth, erect, of a glaucous green colour, towards the top, beset with ovate bracteal scales, and rises to the height of three or four feet. The leaves are numerous, spreading, and proceed from the upper part of the root; they are about two feet long, broad at the base, tapering gradually to a point, thick, fleshy, succulent, channelled, glaucous, smooth, and armed at the edges with remote, whitish horny teeth. The flowers are produced in terminal spikes, of a purple or reddish colour; each flower being accompanied with a single ovate, acute, broad, membranous bracte, white, with three green streaks, and shorter than the corolla. The corolla is bell-shaped, and divided into six narrow petals; the three inner segments are white with three green lines; the outer one narrower and less concave. The filaments are six tapering yellowish, inserted into the receptacle and furnished with oblong orange-coloured anthers; the germen is oblong,

with a simple slender style, and an obtuse stigma.\* The capsule is oblong, 3-celled, containing many angular seeds.—Fig. (a) represents a flower cut open; (b) the germen and style.

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All the species of this extensive genus are natives of hot climates, and most of them grow at the Cape of Good Hope.

It is now well known that numerous individuals of the Aloe family, furnish the concrete juice, met with in commerce under the name of *aloes*; but the subject is still surrounded with so many difficulties, that we must crave the indulgence of our readers, should we be so unfortunate as to perpetuate errors, or fail to increase their present stock of knowledge. Six different kinds of aloes are met with in commerce:—

1st. *Barbadoes aloes*, also called *Hepatic aloes*, and *extract of the common aloe*, is, as stated before, the produce of the *A. vulgaris*. The following account of the culture pursued at Barbadoes, and of the method by which the juice is collected, was communicated by Mr. Millington to the Medical Journal, vol. viii.

“ The lands in the vicinity of the sea, that is, from two to three miles, which are rather subject to drought than otherwise, and are so stony and shallow, as not to admit of planting sugar-canes, with any prospect of success, are generally found to answer best for the aloe plant. The stones, at least the largest ones, are first picked up, and either packed in heaps upon the most shallow, barren spots, or laid round the field as a dry wall. The land is then ploughed lightly, and very carefully cleaned of noxious weeds, lined at one foot distance from row to row, and the young plants set, like cabbages, at about five or six inches from each other. This regular mode of lining, and setting the plants, is practised by the most exact planters, in order to facilitate the weeding of them by hand, very frequently because if they are not kept perfectly clean and free from weeds, the produce will be but very small.

“ They will bear being planted in any season of the year, even in the driest, as they will live on the surface of the earth for many weeks, without a drop of rain. The most general time, however, of planting them is from April to June. In the March following, the labourers carry a parcel of tubs and jars into the field, and each takes a slip or

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\* The figure here represented was made from a fine specimen, which blossomed this season (April 1829) at Nine Elms, Chelsea, in the hot house of our respected friend, A. H. Haworth, Esq. F.L.S.



breadth of it, and begins by laying hold of a bunch of the blades, as much as he can conveniently grasp with one hand, while with the other he cuts it just above the surface of the earth, as quickly as possible, that the juice may not be wasted, and then places the blades in the tub, bunch by bunch, or handful by handful. When the first tub is thus packed quite full, a second is begun, each labourer having two; and by the time the second is full, all the juice is generally drained out of the blades in the first tub. The blades are then lightly taken out, and thrown over the land by way of manure, and the juice is poured out into a jar. The tub is then filled with blades, and so alternately till the labourer has produced his jar full, or about four gallons and a half, which is often done in six or seven hours, and he has then the remainder of the day to himself, it being his employer's interest to get each day's operation as quickly done as possible.

"I should observe, that although aloes are often cut in nine, ten, or twelve months after being planted, they are not in perfection till the second and third year; and that they will be productive for ten or twelve years, or even longer, if good dung, or manure of any kind, is strewed over the field once in three or four years.

"The aloe juice will keep for several weeks without injury. It is, therefore, not boiled till a sufficient quantity is procured to make it an object for the boiling house. In the large way, three boilers, either of iron or of copper, are placed to one fire, though some have but two, and the small planters only one. The boilers are filled with the juice, and as it ripens, or becomes more inspissated, by a constant but regular fire, it is ladled forward from boiler to boiler, and fresh juice is added to that farthest from the fire, till the juice in that nearest the fire (by much the smallest of the three, and commonly called by the name of *tatch*, as in the manufactory of sugar) becomes of a proper consistence to be skipped or ladled out into *gourds*, or other small vessels used for its final reception. The proper time to ladle it out is when it is arrived at what is termed a resin height, or when it cuts freely, or drops in thin flakes, from time to time, into the *tatch* for that purpose. A little lime water is used by some aloe boilers, during the process, when the ebullition is too great. As to the sun-dried aloes, which are more approved for medicinal purposes, very little is made in Barbadoes. The process is very simple. The raw juice is either put into bladders, left quite open at the top, and suspended in the sun, or in broad shallow trays of wood, pewter, or tin, exposed also to the sun, every dry day, until all the fluid parts are exhaled, and a perfect resin formed, which is then packed up for use or for exportation."

2nd. *Socotrine aloes*.—The real socotrine aloes, which is rarely met with in commerce, is produced by the *A. socotrina*. It grows in abundance on the island of Zocotora, which was first discovered by the Portuguese in 1503, and now belongs to the Princess of Hadramanb, a province of Arabia, contiguous to Yemen. The plant is also found in many parts of the South of Africa, particularly in the kingdom of Melinda, where the

greater part of the extract is prepared that is now sold under the name of Socotrine, and Cape aloes. India, Borneo, and Sumatra, also furnish us with this kind of aloes, which are sometimes packed in casks, and at others in skins.

In the island of Zocotora, the inhabitants cut or chop the leaves, and make a slight pressure to obtain the juice, which is left to settle. It deposits a feculent matter, which is thrown away. The supernatant liquor thus freed from its grosser parts, is left to spontaneous evaporation; and it is this difference in the two processes that accounts for the superiority of the real socotrine aloes over that of the Cape: for there, the Hottentots cut the end of the leaves and catch the liquor which flows from them in proper vessels, the lower leaves of the plant generally serving for canals to conduct it into them. The juice thus obtained, is at once reduced to a suitable consistence over the fire, and afterwards packed in boxes containing from one to three hundred pounds.

Socotrine aloes is in solid fragments, compact, heavy, and brittle. It is of a yellowish red or brown colour, in proportion to its purity; is glossy, and breaks with a smooth conchoidal fracture. The thin edges are reddish, and semi-transparent. It is rendered friable by cold, softens by heat, and is adhesive to the touch: is easily reduced to powder, which is of a golden yellow colour: but it soon condenses again into a mass, the particles of which adhere strongly. The odour is strong, *sui generis*: the inferior sorts foetid and nauseous. The taste is bitter, resembling bile. According to Bouillon La Grange, and Vogel, it is composed of 32 parts of resin, and 68 of extractive. It dissolves almost entirely in spirits of wine, and yields a volatile oil by distillation. It is considered to be more mild in its operation than the other kinds of aloes. The *Cape aloes* differ from the Socotrine in possessing a stronger and less agreeable odour. They are also of a yellower colour, and less vitreous in appearance. The powder is of a greenish yellow, resembling gamboge, but less bright.

3rd. *Foetid, or Caballine Aloes*.—This sort is very impure, having the appearance of bitumen. It is marked with ferruginous spots on the outside, and is generally mixed with parti-



cles of burnt straw, fragments of bark, sand, &c. The powder is of a greenish brown colour, and 25 parts are soluble in water. It is not easily reduced to powder, and has the appearance of being the residuum of the boilers in which the preceding sorts were prepared, or rather, of being the residuum of the leaves from which the better parts have been already taken by one of the methods mentioned. It is chiefly used for horse medicine.

4th. *Red Aloes*.—This sort is rarely met with. It is in the form of scales, of a red and transparent appearance; and is supposed to be a natural exudation from the *A. socotrina*, which has concreted in the sun.

5th. *Mocha Aloes* resemble those brought from the Cape, but are more purgative. Little is known of this kind; but as the isle of Zocotora is so near the coast of Mocha, it is probable that they are only a variety of that so long known in commerce as the Socotrine.

6th. *Indian and Mozambique aloes* are very impure, and seem to be of an intermediate quality with the hepatic and caballine.

QUALITIES AND CHEMICAL PROPERTIES.—Barbadoes aloes is generally deeper coloured and more opaque than the Socotrine; it is more tough, and when broken, presents surfaces less shining; while its odour is very strong and highly offensive. Its colour when powdered is dirty yellow, and it is said to be more active than Socotrine aloes; and hence, though its price usually exceeds that of the other, it is principally employed in veterinary practice. It is composed of 42 parts of resin, 32 of extractive, the remainder consisting of a matter analogous to albumen.

Aloes, when pure, is completely soluble in water and alcohol; but the hepatic aloe only affords 86 parts of soluble matter to these menstrua. Aloes puffs up and crackles while burning, and gives out much thick smoke, that smells strongly of the aloes. When boiled in water and reduced to an extract, it loses much of its purgative property. It is stated by Murray, that the substance of the leaves does not partake of the qualities of the extract, which is contained only in vessels situate immediately under the epidermis; and this explains why it is that the inha-

bitants of Cochin-china are able to prepare a wholesome fecula from them. The aloes examined by Braconnot appeared to that chemist to have some particular qualities, which induced him to consider it as a distinct substance, for which he proposes the name "*amer resineux*." Trommsdorf, on the other hand, and Bouillon La Grange, and Vogel, consider it as composed of resin, and a peculiar extractive matter. M. Fabroni, in the *Ann. de Chimie*, (vol. xxv.) states that he procured from the leaves of the *A. socotrina* var. *augustifolia*, a violet dye, which resists the action of oxygen, acids, and alkalies. This juice, he says, produces a superb transparent colour, which is highly proper for works in miniature, and which, when dissolved in water, may serve either cold or warm, for dyeing silk from the lightest to the darkest shades; and he reckons it one of the most durable colours known in nature. Aloes was used among the ancients, in embalming, to preserve bodies from putrefaction. Of this aloes, interpreters understand that to have been, which Nicodemus brought to embalm the body of Christ. (John xxx. 3.)

ADULTERATIONS.—Aloes are frequently adulterated with common resin; but, according to Dr. Paris, the fraud more generally committed is that of mixing with, or substituting the inferior species for the *Socotrine*. The *Barbadoes aloes* may, independently of its want of aromatic flavour, be distinguished from the *Socotrine* by a simple test, for the latter dissolves entirely in boiling water and alcohol, whereas the former, when treated in a similar manner, leaves a considerable residue. Sometimes the *Caballine aloes* is made to appear so bright and pure, as not to be easily distinguished by the eye even from the *Socotrine*, but its rank odour readily betrays the fraud.

MEDICAL PROPERTIES AND USES.—It is the *A. vulgaris* and *A. socotrina*, that produce the gum-resins used for pharmaceutical purposes; and they differ little in their medicinal effects. They are warm stimulating purgatives, particularly adapted for what is termed the melancholic temperament; and exercise a tonic power, proved by their extreme bitterness, and their beneficial influence in chronic affections of the stomach and bowels, as vomiting, flatulence, loss of appetite, and other symptoms



usually denominated dyspeptic. Their operation is slow, but generally effective, nor do large doses appear to exert much more power than smaller ones. The medium dose of aloes is from five to ten grains, but they are generally combined with other purgatives to obviate habitual costiveness; to remove viscidities of the intestines; and from their stimulating and tonic powers are well adapted for jaundice, chlorosis, hypochondriasis, and scrophula. Through their acting more particularly on the colon and rectum, they are efficacious in expelling ascarides, but from the same cause occasionally produce hæmorrhoids. They also impart a stimulus to the uterine vessels, and are found beneficial as emmanagogues: pregnant women should be, therefore, cautious how they persist in their use.

In doses of two drachms, aloes produce nauseating and depressing effects upon the horse, and are therefore much used in the active diseases of this noble animal, when it is necessary to diminish the force of the circulation. From six to eight drachms of aloes, combined with soap and other ingredients, also constitute the purgative-ball usually administered.

The following are some of the principal Quack or Patent Medicines that owe their activity chiefly to the aloes they contain:—

*Anderson's Pills* consist of Barbadoes aloes, with a proportion of jalap, and oil of aniseed.

*Hooper's Pills*.—Pil. aloes with myrrha, or Rufus' pill; sulphate of iron; and canella bark, to which is added a portion of ivory black. Dr. Barlow, one of the physicians to the Bath Hospital, relates a case in which these pills were retained in the intestines nearly twelve months. The facts detailed in this case are valuable, from the cautions which they suggest to regular practitioners,—who in administering pills with iron, should be careful to ensure their ready solution by appropriate combination, and also by having them always freshly prepared.—See “*Lancet*,” vol. xi. p. 806.

*Dixon's Antibilious Pills*.—These are composed of aloes, scammony, rhubarb, and tartar emetic.

*Speediman's Pills*.—Myrrh, aloes, rhubarb, of each, one ounce, extract of chamomile, half an ounce; beat into a mass with syrup, and divided into four grain pills.

*James's Analeptic Pills.*—Gum ammoniacum, pill aloes with myrrh, antimonial powder, of each equal parts, made into a mass with tincture of castor.

*Dinner Pills: Lady Webster's, or Lady De Crespigny's Pills.*—These popular pills are the “pilulæ stomachicæ,” vulgo, “pilulæ ante cibum” of the Codex Medicamentarius Parisiensis. Editio Quinta, A. D. 1758.

Take of Aloes, 6 drachms.

Mastich	} of each, 2 drachms.
Red rose leaves	

Syrup of wormwood, as much as may be necessary to form a mass, which is to be divided into pills of 3 grains each.

*Fothergill's Pills.*—Aloes, scammony, colocynth, and oxide of antimony.

*Peter's Pills.*—Aloes, jalap, scammony, and gamboge, of each 2 drachms; calomel, 1 drachm.

*Radcliff's Elixir.*—Take of Socotrine aloes, 6 drachms; cinnamon bark, zedoary root, of each,  $\frac{1}{2}$  drachm; rhubarb, 1 drachm; cochineal, 3ss drachm; syrup of buckthorn, 2 ounces; proof spirit, 1 pint; water, 5 ounces. Mix.

*Beaume de Vie* is the compound decoction of aloes.

OFF. PREP.—Pulv. aloes comp. *L.* Pilula aloes. *E. D.* Pil. aloes comp. *L.* Pil. aloes cum myrrha. *L. E. D.* Pil. aloes et assafœtidæ. *E.* Pil. aloes c colocynthide. *E.* Pil. cambogiæ comp. *L.* Pil. Rhæi comp. *E.* Pil. scammonii comp. cum aloë. *D.* Decoctum aloes comp. *L.* Extractum aloes. *L. D.* Extractum colocynthidis comp. *L. D.* Tinctura aloes. *L. E. D.* Tinctura aloes comp. *L. E. D.* Tinctura aloes ætherea. *E.* Tinct. benzoini. comp. *L. E. D.* Tinct. Rhæi et aloes. *E.* Vinum aloes. *L. E. D.*







*Scilla maritima.*

G. Reid. del.

W. & A. De la Beche.



## SCILLA MARITIMA.

*Officinal Squill, or Sea Onion.**Class VI. HEXANDRIA—Order I. MONOGYNIA.**Nat. Ord. CORONARIÆ, Lin. ASPHODELI, Juss.*

GEN. CHAR. *Corolla* inferior, of six ovate-oblong *petals*, spreading, deciduous. *Stamens* thread-shaped.

SPEC. CHAR. *Bulb* coated, pear-shaped, scaly at the top. *Flowers* much earlier than the leaves, in a strong, dense cylindrical cluster. Lower *bractæas* elongated at the base.

*Syn.*—*Scilla Hispanica vulgaris*. *Ger. Em.* 171; *Clus. Hist.* 171.

*Scilla rufa magna vulgaris*. *Bauh.* 2. 615. *f.*

*Scilla vulgaris radice rubra*. *Bauh. Pin.* 73.

*Sancratium*. *Clus. Hisp.* 293.

*Ornithogalum Squilla*; *Bot. Mag.* v. 24. t. 918.

*Ornithogalum maritimum*. *Tourn. Inst.* 381; *Brotero Fl. Lusit.* 1. 583; *Fl. Franc.* 3. 276.

*Scilla maritima*. *Lin. Sp. Pl.* 442; *Willd.* 2. 125; *Ait. Kew.* v. 2. p. 262; *Redout. Liliac.* t. 116; *Woodv.* t. 118.

FOREIGN.—*Scille*; *Orignon marine*, Fr.; *Scilla*; *Cioppollo marina*; *Sancrazio*; It.; *Escilla*; *Cebolla albarana*, Sp.; *Esquilla*; *Cebolla alvarii*, Port.; *Squille*; *Mierswiebel*, Ger.; *Skille*, Dan.; *Skille*, Swed.

THIS valuable article of the vegetable materia medica is a native of the sandy shores of France, Spain, Portugal, Italy, Sicily, Syria, and the Levant. Sometimes it is found far inland; for instance, at the foot of the Estrella mountains; so that, as Link observes, *maritima* is rather a fallacious appellation. It thrives well in this country, in large garden pots, and was cultivated by Parkinson in 1628; but requires protection during winter in a common garden frame. With us, it blossoms in April and May; but in its native soil the flowers are said to be produced in July and August; the leaves appearing in October and November.

The bulb, improperly called the root, is sometimes as large as

ing-cough ; and although its effects as an emetic are truly distressing, it is the one usually employed in this obstinate disease. To produce expectoration the syrup or vinegar of squill are generally employed, the dose of the former being a drachm ; of the latter, half that quantity, repeated every four or five hours. When vomiting is required, larger doses, oftener repeated, are required.

As a diuretic, squill is a valuable medicine, and is given in its recent or dried state. The dose of the former is from five to fifteen grains ; of the latter, from one to three : the smaller dose should be begun with, morning and evening, in the form of a pill, and gradually increased in quantity until the diuretic effect is obtained. By some it has been recommended to give it so as to induce some degree of nausea ; but it is very distressing to the patient, and often obliges us to discontinue a medicine of undoubted utility ; for if the stomach once rebels against it, it is seldom that it can be given in such doses again. Combined with mercury its diuretic effects are materially increased, the former appearing to rouse the absorbents, while the latter stimulates the kidneys. This combination is particularly adapted to those cases in which dropsy depends on, or is connected with enlargement, torpor or chronic inflammation of the liver. Of the mercurial preparations the mercurial pill, and calomel, are generally preferred, though Cullen recommends the oxymuriate. When the mercurial preparations induce purging, the diuretic action of the squill will be suspended. This effect must therefore be obviated either by substituting frictions with the ointment, or by corrective medicines.

OFF. PREP.—Acetum Scillæ, L. E. D.

Oxymel Scillæ, L. E. D.

Pilulæ Scillæ, comp. L. E. D.

Pulvis Scillæ, E. D.

Syrupus Scillæ maritimæ, E.

Tinctura Scillæ, L. D.







*Acorus Calamus.*

*V. Clark del. et sculp.*

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## ACORUS CALAMUS.

*Common Sweet Flag.**Class VI. HEXANDRIA.—Order I. MONOGYNIA.**Nat. Ord. PIPERITÆ, Lin. AROIDEÆ, Juss.*

GEN. CHAR. *Spadix* cylindrical, covered with sessile florets. *Petals* 6, naked. *Style* 0. *Capsule* 3-celled.

SPEC. CHAR. Flower-stalk rising high above the spadix.

*Syn.*—*Acorus verus*, sive *Calamus officinarum*, *Raii. Syn.* 437; *Park.* 140.

*Acorus versus officinis*, falso *Calamus*, *Ger. Em.* 62. *f.*

*Acorus*, *n.* 1307. *Hall. Hist. v.* 2. 164.

*Acorus undulatus*, *Stokes Bot. Mat. Med.* 2, 282.

*Acorus Calamus*, *Lin. Sp. Pl.* 462; *Willd. v.* 2. 199.; *Fl. Brit.* 373.;

*Eng. Bot. v.* 5. *t.* 356.; *Bart. Veg. Mat. Med. v.* 2. *t.* 30. *p.* 63.

*Typha aromatica*, *clava rugosa*, *Moris. v.* 3. 246. *t.* 13. *f.* 4.

ENGLISH.—*Common Sweet Rush*, *European Sweet-Rush*, *Sweet-smelling Flag*, *Myrtle-flag*, *Sweet Myrtle-grass*, or *Calamus Aromaticus*.

FOREIGN.—*Acorus odorant*, *Fr.*; *Calamo aromatico*, *Ital.*; *Acoro Calamo*, *Span.*; *Kalmus wurtzil*, *Ger.*; *Bach*, *Hind.*; *Vacha*, *San.*

The *Acorus Calamus*, or sweet-scented flag, a plant which bears a considerable resemblance to the *Iris Pseud-Acorus*, or common yellow Water Flag, is a well-known aromatic. It is a native of England, and many parts of Europe, Asia, and America, growing naturally in shallow waters, and on the banks of rivers; flowering in June. In this country it is not

very common. Our figure was taken from a specimen in the Earl of Mansfield's park at Highgate, where it grows in profusion by the side of the reservoir, which supplies part of the northern suburbs of the metropolis with water. We observed it sparingly in a pond in Copenhagen fields; and also on Wimbledon common. It is remarkable, that this plant is unknown in Scotland.

The root, which spreads horizontally, is long, about an inch thick, spongy, full of rings or joints arising from the decay of former leaves, somewhat compressed, externally of a greenish white colour, which changes in drying into a yellowish brown, internally white, with many long *radicles*, which spring from the under side. From the joints, and from the point between the lateral union of the roots, bunches of blackish fibres are always found when the plant has grown in its natural wet situations. The leaves are two or three feet high, sword-shaped, pointed like those of the common Iris, sheathing, and of a pale yellowish green colour; they spring directly from the root, are usually waved on one of the edges near the top, and emit, when bruised, a strong aromatic odour. The flowers are tessellately arranged on a spadix, issuing laterally about a foot above the ground, from the middle of a naked stalk or scape, which rises beyond it, and having the appearance of a leaf. The spadix is solitary, two or three inches long, cylindrical, and attenuated at its apex and base. It is crowded with numerous small pale green flowers, consisting of six equal concave petals, without any calyx, and stamens varying in number, which have thick filaments, alternate with the petals, and double anthers. The germen is elliptical, without any style, and crowned by an obscurely 3-lobed stigma. The capsule is triangular, membranous, of three cells, and containing many seeds. Fig. (*a*) represents a perfect flower; (*b*) a stamen; (*c*) the pistil and germen.

Only two species of *Acorus* are described, viz. the subject of this article, and the *A. gramineus*, which is cultivated in China. Of the *A. Calamus*, authors describe two varieties, the *vulgaris*, European sweet-rush, sweet-smelling flag, or *Calamus*



aromaticus, which is also indigenous to America; and the *verus*, seu Asiaticus, Indian sweet-rush, or *Calamus aromaticus*, which not only grows in marshy ditches, but in more elevated and dry places in Malabar, Ceylon, Amboyna, and other parts of the East Indies; it is said to differ little from the European, except in being a little more tender and narrow, and of a more hot and pungent taste.\*

PROPAGATION AND CULTURE.—According to Miller the Sweet Flag will succeed very well in a garden; but never produces its spikes unless it grows in the water. It delights in an open situation, and does not thrive in the shade. When the plant is fixed in a proper situation, it will multiply by its creeping roots fast enough.

QUALITIES.—The root has a warm aromatic odour, and a pungent, bitter, aromatic taste. “In the dried state the article is corrugated, of a yellowish brown colour, with many white elevated circles on the under side, whence the radical fibres issued. It breaks with a short rough fracture; is internally of a pale buff colour, and a spongy texture; both the smell and taste are improved by exsiccation.”† It contains an essential oil, to which it owes its peculiar taste, and the aromatic flavour that it yields to those infusions, of which it is an ingredient; for the residuum after distillation has a nauseous flavour dissimilar to *Calamus*. Hoffman obtained two ounces of essential oil from fifty pounds of the root; but Neuman and Cartheuser obtained it in a larger quantity. It contains a considerable quantity of fecula, which is dissolved in the infusion, and may be copiously precipitated from it, by acetate, and superacetate of lead. Watery infusions of the root are strongly imbued with the odour, and have a warm bitter taste. Spirituous tinctures are more warm and pungent than aqueous infusions, but much less bitter, and have but little smell; and water applied after spirit, gains a considerable bitterness.‡ Hence it is evident, that water is the best menstruum. The roots were formerly brought from the Levant, but

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\* Barton's *Vegetable Materia Medica*, fol. 67.

† Thompson.

‡ Lewis, *Mat. Med.* p. 225, vol. 1.

our indigenous plant affords them quite as good, and the medical properties of the European, American, and Asiatic varieties do not differ.

ECONOMICAL USES.—The leaves are noxious to insects, and no kind of cattle eat any part of the plant. It has been suggested therefore, that the leaves might be employed to destroy the larvæ and insects, which injure books and woollen cloths. The whole plant has been used by M. Bautroth for tanning leather; and it is supposed by Dr. Bohmer, that the French snuff, *a la violette*, receives its scent from this root. Throughout the United States, it is used by the country people, as an ingredient in making wine bitters.\*

MEDICAL PROPERTIES.—The roots only of this plant are used in medicine, and candied, are said to be taken by the Turks, as a prophylactic against contagion. Six drachms of the bruised root to twelve ounces of boiling water, form an elegant infusion, which is strongly impregnated with the odour of the plant, and possesses a moderately warm, and very bitter taste. This infusion is a most efficacious stomachic, and pity it is that a medicine growing so plentifully in our own country, should give place to exotic remedies of less value: “for it is successfully used in intermittents, even after bark has failed, and is certainly a very useful addition to Cinchona.” Dr. Barton informs us, that the country people in America cure themselves of ague by a free use of the tincture, and asserts, that it has proved energetically beneficial in that distressing complaint to which sailors are so frequently subject from the nature of their life and diet, well known, particularly to naval surgeons, by the name of wind colic; given in hot decoctions in the manner of ginger-tea, it quickly relieves the distressing swelling of the abdomen. It may be chewed by dyspeptic persons, and the juice swallowed with advantage, when tonics are required; and as it excites a copious secretion of saliva it sometimes relieves the pain of tooth-ache.—The dose in substance is from ℥ i. to ʒ i.

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\* Barton.







Widdell Fecit

*Colchicum autumnale*



## COLCHICUM AUTUMNALE.

*Common Meadow-saffron.**Class VI. HEXANDRIA.—Order III. TRIGYNIA.*

*Nat. Ord. SPATHACEÆ, Lin. Junci, Juss. COLCHIACEÆ,  
De Cand. MELANTACEÆ, Brown, Prodr., p. 272.*

**GEN. CHAR.** *Calyx 0. Corolla 6-parted, tubular.  
Capsules 3-inflated. Seeds numerous.*

**SPEC. CHAR.** *Leaves flat, lanceolate, erect. Seg-  
ments of the corolla oblong.*

*Syn.—Colchicum anglicum purpureum et album, Ger. Em. 157, f.*

*Colchicum commune, Raii Syn. 373; Bauh. Pin. 67.*

*Colchicum vere prodiens, Camer. Epit. 846. f.*

*Colchicum, n. 1255, Hall. Hist. v. 2. 124.*

*Colchicum autumnale, Lin. Sp. Pl. 485; Willd. v. 2. 273; Fl. Brit. 399;  
Eng. Bot. v. 2. t. 133; Woodv. v. t. 177; Hook. Scot. 114; Stokes, v.  
2. 329.*

**FOREIGN.**—*Κολχικόν, Diosc.; Εφημερον, Theophr.; Colchique, Tu-chien, Fr.; Col-  
chico autumnale, Giglio Matto, Strozso-cane, It.; Zeitlose, Lichtblumo,  
Ger.; Tydeloosen, Naakte-vrouwen, Dut.; Nakna Jungfrur, Swed.*

**MEADOW-SAFFRON**, like the colts-foot, produces its leaves one season, and flowers at another; but differs in this respect, that the leaves, and fruit, appear early in the spring, and the flowers in the autumn. It is an indigenous perennial plant, found in several counties, chiefly in the west, and north of England, where it grows in tolerable abundance, in moist rich meadows. It occurs, among other places, at Filkins and Bradwell, Oxford-

shire; in Weston Park, Staffordshire; at Little Stonham and Bury, Suffolk; near Devizes, Wiltshire; about Derby and Northampton; and at the foot of the Malvern hills, in Worcestershire. Miller observed it, many years ago, in great plenty, in the meadows near Castle-Bromwich, in Warwickshire, in the beginning of September, and says, that the common people called the flowers *Naked Ladies*, because they come without the leaves. In Scotland it appears to be very rare; but Lightfoot, in his "*Flora Scotica*," mentions it as growing at Alloa, the seat of a Mr. Erskine.

The root is perennial—consisting of two fleshy succulent bulbs, abounding in a milky juice, and covered with a brown membranous coat. The bulb, which is nearly as large as a tulip, and furnished at the base with numerous small fibrous roots, perishes after the ripening of the seeds, having first thrown out a lateral bulbous offset, that produces the flowers of the ensuing season. From this last, arises in autumn, along a furrow in the side of the old bulb, a long naked tube, which at the upper part expands into the flower. The leaves spring directly from the bulb in spring, along with the capsules. They are dark green, smooth, obtuse, spear-shaped, above a foot long, and pointed; growing erect. On the decay of the leaves, the flower makes its appearance, towards the latter end of September. It is large, of a pale purple or lilac colour, divided into six deep, elliptic-oblong, concave, upright segments, and rising immediately from the bulb, by a tube five or six inches long, two-thirds of which are sunk in the ground. There is no calyx. The filaments are awl-shaped, inserted into the tube of the corolla, and support erect, oblong, yellow anthers. The germen is roundish, and imbedded in the root. The styles are thread-shaped, the length of the stamens, and terminated by linear, recurved, and downy stigmas. The fruit is a capsule, with three lobes, closely connected, and containing numerous whitish, smooth, globular seeds, which are perfected in the month of June, when the capsule rises above ground on a short peduncle, and accompanied by the leaves.



A considerable variety obtains in this species, both with respect to the form and colour of the flower. In one variety the flowers accompany the leaves in spring. Fig. (a) represents a petal with a stamen attached; (b) the pistil; (c) the stigma; (d) the germen; (e) the capsule and flower.

In the introduction of Colchicum into modern practice, we are principally, if not wholly, indebted to Mr. Want. The first hint he obtained on this subject, was derived from the writings of Alexander of Tralles,\* a Greek physician of the sixth century, whose book on gout is one of the most valuable clinical records of antiquity; and who, in his chapter on anodynes, remarks, that some persons take a medicine called *Hermadactylon*, which produces an evacuation of watery matter from the bowels, attended with such relief that patients are immediately able to walk. But, says he, it has this bad property, that it disposes them who take it to be more frequently attacked with disease. He speaks, also, of its producing nausea and loathing of food; and proceeds to describe the manner of counteracting its bad properties. The effects here spoken of, are so similar to those resulting from the exhibition of the Eau Medicinale, that Mr. Want was led to hope that it might be the same medicine, or, at least, that it possessed powers of the same kind; and on procuring a specimen of this plant from Constantinople, it was found to be the Colchicum. The Hermodactyl was strongly recommended by Paulus Ægineta as a specific for the gout, also by Pepagoneus, who wrote a treatise on that disease at the request of the Emperor Michael Palæologus, in the 13th century; and such was its reputation that it obtained the name of *Anima Articulorum*, “the soul of joints.” Two of the most celebrated gout-specifics, viz. Turner’s Gout-powder, and the Vienna Decoction, the latter of which is so strongly recommended by Behrens in the *Ephemerides Naturæ Curiosum*, are formed principally of Col-

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\* Alexander Trallian, cap. xi.

chicum ; and it is notorious to every practitioner acquainted with the history of his profession, that this root has, at different times, obtained a celebrity in the treatment of gout, though its general use has, after a time, been suspended. But that the occasional want of confidence in its power, has arisen less from its inefficiency, than from its misapplication, the extensive experience of the present day enables us to affirm. The difference of opinion which has been expressed by many, after repeated trials of this bulb, only proves, that its efficacy is deteriorated by soil, or that it has been taken up at an improper period. Turner recommends fifteen grains at a dose, with equal parts of other purgatives ; while Störck\* affirms, that less than a grain, wrapped up in crumbs, and taken internally, produce alarming symptoms. Trallian advises the addition of scammony, if a fuller evacuation of the bowels be necessary. Prosper Alpinus says, the Colchicum is perfectly inert, and that the Egyptian women fatten themselves with the wasted roots, often eating twenty in the course of the day, without having any effects produced, either on the stomach or bowels.† More modern experimentalists have differed nearly as much on the powers of Colchicum ; but, owing to the investigations of Messrs. Batley and Thompson, the time at which the bulb should be taken up has been satisfactorily proved, by its uniform effects. In the spring, (*April*,) the root does not materially vary in size and general appearance from that which is ordinarily met with. It is then of full size, but irregularly indented or hollow. At this time it is found with a small attached bulb, about the size of a bean. The growth of this small bulb *proceeds* from the latter end of April or beginning of May (according to the season), until the latter end of June or beginning of July, at which time it attains its

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\* We are afraid that little reliance can be placed in Störck's veracity ; for De Haen, who was his contemporary, finding that his experience of the effects of hemlock did not support the assertions of the former, investigated the alleged fact of his curing 36 cases of cancer by it, and found that 30 of them had died victims to the disease, and that the rest remained uncured.—Vide his *Epistola de Cicuta*.

† De Medicina Ægyptiorum, lib. iii. cap. 16, p. 109.



full growth. The parent root appears to yield as the new production advances, and when the latter attains its full size is nowhere to be found. The *new* root is then plump, firm, and without any indentation or hollow, and does not undergo any change of appearance from this period until the latter end of August, when in its turn it becomes *old*—for at this time it throws out a new bulb: from that new bulb the flower proceeds, and in the course of a very few days is fully displayed. Between this latter period and the spring very little apparent change takes place: the root and offset are then found as first described. These changes are, of course, subject to some variation from soil, climate, and season. The state and condition of the root, if subjected to experiment, illustrate the process of nature in a striking and forcible manner. A transverse section of the bulb, exposed to the temperature of 170, if procured in *autumn* contracts, and when dried is shrivelled; if procured in *spring*, the cuticle collapses, no other part of the then remaining substance being capable of enduring heat; if procured in the months of *July* and *August*, before the new bulb is projected, it remains quite solid and firm, and has a creamy appearance.

It may be inferred from these facts, that this root is deprived of its power progressively, from the time of throwing out the new bulb, until its final disappearance; and that, although very little change of appearance occurs during the winter months, it really undergoes a decided change during that period.

QUALITIES AND CHEMICAL PROPERTIES. — The root, when taken from the ground at the time recommended, and cut transversely, exhibits a milky appearance on both surfaces. The exudation is not particularly pungent: it rather impresses the tongue with a cold but peculiar sensation, which remains unabated for some time. This sensation is accompanied by a peculiar excitement, which is conveyed to the fauces, and continues still longer than the first-mentioned sensation of cold. The properties of *Colchicum* reside in this milky juice, and depend

upon an alkaline principle termed *veratrine*,\* which has also been discovered in the seeds of the *Veratrum sabadilla*, and the *Veratrum album*. When treating of the latter plant, we shall fully advert to its properties. It contains, also, gum, starch, inulin, and extractive matter, which, when in solution, undergoes a chemical change, supposed by Dr. Paris to be analogous to that which takes place in the infusion of senna. Sir E. Home ascertained, that this deposit in the vinous infusion excites nausea and griping, but that it may be removed without destroying the efficacy of the medicine. It is now generally understood, that Husson's *Eau Medicinale* owes its virtues to Colchicum; for not only does it correspond to our Vinum Colchici in its effects, but it is notorious that Wedelius, a continental physician, sold an empirical preparation of this plant, which was extolled as a panacea; while the catalogue of its virtues bears strong resemblance to Husson's original advertisement, and the account of this nostrum is contained in Geoffroy's system of *Materia Medica*, well known in France, where Husson lived. Wilson's and Reynold's specifics are also entirely indebted to Colchicum for any virtues that they may possess.

Good Colchicum, that is, Colchicum taken up in July, contains gluten; and as Dr. Todd Thompson found, that those specimens in which this principle can be demonstrated are the most powerful in their effects, he infers, (what is now generally acknowledged) that these only should be regarded as fit for medicinal use, and, therefore, that the agent by which gluten is detected in the dried bulb must be regarded as a proper test of its goodness. Dr. Thomson, therefore, rubs ten grains of Colchicum in a mortar, with sixteen minims of distilled vinegar, which is the best solvent of gluten, and immediately adds the same quantity of an alcoholic solution of guaiacum; a most beautiful cerulean blue is directly evolved:—"Distilled vinegar,

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\* It is very remarkable, that M. Jussieu, in his *Genera Plantarum*, fol. 53, should say laconically, when speaking of Colchicum, "*Habitus Croci aut Gethyllidis, sed major cum Veratro affinitas.*"



when added alone to the alcoholic solution of guaiacum, merely precipitates the guaiacum unaltered ; consequently, the change of colour is evolved, if the powder of Colchicum be well rubbed with the solution alone, although it is by no means so quickly produced."

Dr. Thompson further recommends, that the bulb, when taken up in July, should be cut as soon as possible into transverse slices, equal in thickness to half-a-crown, and then, being spread out upon clean white paper, should be dried without artificial heat, in an airy situation, screened from the sunshine.

POISONOUS EFFECTS.—About twelve months ago, two or three deaths occurred, through the prevalence of the mistaken idea that Colchicum produced a *specific* action on the uterus, whereby abortion might be produced ; when it is very evident, that such effects arise solely from the violent purging and inflammation which it is capable of exciting, in common with black hellebore, elaterium, and some other plants. The subjoined case has been kindly communicated to us by Mr. Dillon :—

" Susan Laing was about thirty years of age, and of good health and constitution ; she was about two months gone in pregnancy of a bastard child, and, having read in a newspaper, that a woman was taken up for causing abortion by taking Meadow-saffron, she determined on getting rid of her burthen by a similar measure. She accordingly bought twopennyworth, and made an infusion of it, which she took on an empty stomach, early in the morning of the 10th of March, 1827. I was called to her about four o'clock in the afternoon of the 11th, and on enquiry, learned that she had miscarried the preceding evening. I found her in a very hopeless state ; her extremities were quite cold, and the whole of her body, particularly the hands, feet, and face, livid ; the glossy stare of impending death was in her eyes ; the respiration was hurried, and the pulse could not be felt at the carotids, and but faintly at the heart. Notwithstanding, the sensorium was undisturbed, and she gave me a clear account of what she had done, her motives for so doing, and the effects the poison had on her. She said, that in about half an hour after she had taken it, her stomach became sick, gripes came on, and a violent purging, which continued with great severity. She had had no medical assistance, and had past a most wretched time from the morning before, and was so tormented with pain and purging, that she had not a wink of sleep

in the course of the night. I administered to her large draughts of brandy and spices, but to no effect, as she died in two hours after I was called in. The body was opened the next day, and all the viscera were found perfectly sound, with the exception, that the mucous membrane of the stomach and bowels was dreadfully inflamed, throughout its course.

Garibel, in his "*Histoire des Plantes des environs d'Aix*," records, that a servant was killed by taking the flowers for an intermittent fever; in which disease they were said to be useful. Cattle who feed in meadows, where *Colchicum* grows, are said to be affected in the spring by the seeds, which adhere to the coat of the stomach, producing at the several points of their adhesion, inflammation, which occasions death; and several pigs having eaten plentifully of the bulbs, which had been grubbed up, and placed in a yard, died in excruciating agonies; and on dissection, the stomach of each was found *burst*.

**TREATMENT.**—See *Helleborus niger*. Art. XI.

**MEDICAL PROPERTIES AND USES.**—*Colchicum* is one of the most powerful remedies we are possessed of, in consequence of the direct action it is capable of exerting over the heart, and arteries. On the continent it has been chiefly used in the treatment of hydrothorax, and asthma, but although we have had considerable experience in its administration, we could never satisfy ourselves that its effects in those diseases were equal to squills; and as a diuretic it can never be relied on. If given in over-doses it produces distressing nausea, deadly vomiting, and profuse purging; but combined with some saline purgative which acts on the bowels *of itself*, the *Colchicum* even in large doses exerts its own specific powers, and in a few hours, generally succeeds in destroying the paroxysm of gout. In acute and chronic rheumatism it is constantly given with the most happy results; and we have ascertained, that when *digitalis* fails to produce its effects, even in considerable doses, and after having been administered for some little time, that by combining it with *Colchicum*, our wishes will be speedily accomplished. The late Mr. Haden published an admirable little work on the power of *Colchicum* over inflammatory diseases; and a case of peritoneal inflammation which occurred in our own practise, and could only be mitigated by repeated bleedings, gave way immediately to the powdered *Colchicum*, conjoined with the sulphate of



potash. The marked success of this case, has led us to employ the same remedy in most inflammatory diseases, and having observed that the pulse was frequently rendered intermitting, we were led to its adoption in a case of hæmoptoe, where we had given drachm doses of digitalis without any decisive effects. We then gave half that quantity, combined with an equal part of the Vinum colchici, and we were surprised to find that three doses, brought down the pulse from 120 to 70 beats in the minute, attended by distinct intermissions. Since this case occurred, we have often prescribed these valuable agents conjointly, and have every reason to be satisfied with the results. Dr. Williams of Ipswich has adduced very satisfactory proofs of the mild and beneficial effects of a vinous tincture of the seed; and the flowers are also sometimes employed. In conclusion, we most earnestly recommend an attentive perusal of Mr. Haden's work, in which are recorded the beneficial effects of Colchicum in rheumatic and inflammatory fevers, inflammations of the lungs and membranes, catarrh, influenza, puerperal fever, and other affections, whereby bleeding was rendered unnecessary.

It is exceedingly desirable that such a powerful remedy should be prepared on an uniform plan, and as we fully agree with Dr. T. Thompson, that sherry wine is a much better solvent of the *veratria* than the dilute spirit, we avail ourselves of his form for making the wine of colchicum.

“ Take of the bulbs of colchicum, (dug up in July,) sliced transversely, and dried without heat, or at a temperature not exceeding 110°, *one ounce and a half*; pulverise them, and pour upon the powder put into a glass-bottle, twelve ounces of good sherry wine. Agitate the mixture twice a day for seven days, and then filter for use.”

For the same quantity of sherry, two ounces of the *seed*, or *flowers* will be required, and of either of these tinctures, from thirty to eighty drops may be given, combined with carminatives, alkalies, or saline purgatives.

In some cases, particularly where acidity and flatulence prevail, the Spiritus seminum colchici ammoniatus (prepared by macerating for ten days, two ounces of the seeds in a fluid pint

of the spiritus ammoniæ aromaticus) is said to be a medicine of greater value than the wine of colchicum.

Dose.—The dose of the powder is from three to eight grains.

OFF. PREP.—Vinum Colchici. *L.*

Acetum Colchici. *L.*

Oxymel Colchici. *D.*

Syrupus Colchici Autumnalis. *E.*









## RUMEX HYDROLAPATHUM.

*Great Water Dock.**Class VI. HEXANDRIA.—Order III. TRIGYNIA.*

GEN. CHAR. *Calyx* 3-leaved. *Petals* 3. *Seed* 1, naked triangular.

SPEC. CHAR. *Petals* ovate-oblong, nearly entire, unequally tuberculated. *Leaves* lanceolate, acute at each end. *Whorls* almost entirely leafless.

Syn.—*Lapathum maximum aquaticum*, sive *Hydrolapathum*, *Raii. Syn.* 140; *Bauh. Hist. v. 2.* 986. *f.* 987.

*Hydrolapathum magnum. Ger. Em.* 389. *f.* 1.

*Lapathum n.* 1588. *Hall. Hist. v. 2.* 271.

*Rumex aquaticus. Lin. Sp. Pl.* 479; *Fl. Brit.* 394; *Eng. Bot. v. 30. t.* 2104. *Hook. Scot.* 112.

*Rumex Hydrolapathum. Willd. v. 2.* 251; *Huds. Fl. Ang. ed. 2.* 151.

FOREIGN.—*Le Patience aquatique, Herbe Britanique*, Fr.; *Labaca maior ou larga*, Port.; *Wasserampfer*, Ger.; *Vaudskreppe*, Dan.; *Vatnsyra*, Swed.; *Wodjanoi schawel*, Russ.

THE genus *Rumex* consists of a pretty numerous assemblage of hardy, perennial, mostly herbaceous plants, nearly allied to *Rheum*. They have little or no pretensions to be considered as ornamental, and many of them are common weeds in cultivated grounds and pastures, especially in moist situations. The roots of most of the species are astringent, and in a few the leaves are powerfully acid. Willdenow, in the last edition of the “*Species Plantarum*,” enumerates thirty-six species, eleven of which are natives of Britain. Of these species it is necessary to mention only two as medicinal plants, viz. the great Water Dock, *Rumex Hydrolapathum*, and the Common Sorrel, *Rumex Acetosa*, both of which are indigenous, and have long obtained a place in our national pharmacopœias. The first grows in marshland ditches, stagnant waters, and the margins of great rivers, throughout Europe, as well as in North America, from Pennsylvania to Vir-

ginia, but, according to Mr. Pursh, not common. With us it is very abundant and conspicuous, being by far the largest of our docks; and flowering in July and August. We found it this summer (1829) in the greatest profusion at Whittlesea Mere, in Huntingdonshire, where the *Lycæna dispar*, or large Copper butterfly, (Curt. Brit. Entomol. v. 1. t. 12.) feeds on it in its caterpillar state.

The root is large, knotty, blackish-red externally, and furnished with numerous long hairy fibres. The stem rises about five feet in height, erect, branched, leafy, furrowed, cylindrical, and smooth. The leaves are somewhat glaucous, stalked, lanceolate, pointed, smooth, entire, but slightly curled at the edges, and tapering at the base. The radical leaves are often near two feet in length, and stand upon long channelled footstalks; those near the top of the stalk, small, narrow, and almost linear. The branches of the panicle are a little zigzag, beset with numerous many-flowered whorls. The flowers are drooping, on capillary pedicels of very unequal length, swelling at the top, and jointed towards the base. The calyx is divided into three narrow acute, permanent segments. The corolla consists of three petals, which are ovate, obtuse, reticulated with prominent veins, entire, sometimes a little wavy or notched, each bearing an oblong, reddish tubercle, varying in size and shape, and becoming most conspicuous when the seed ripens. The filaments are capillary, short, bearing erect, oblong, 2-lobed anthers. The germen is turbinate, and supports three capillary reflexed styles, with tufted stigmas. The capsule is formed of the enlarged petals, which by approximating assume a triangular form, inclosing a solitary ovate, acute triangular seed.—Fig. (a) front view of a flower a little magnified; (b) the calyx; (c) an anther; (d) the seed; (e) a flower with the petals, showing the germen and styles; (f) the germen and styles detached.

QUALITIES.—The roots externally are blackish-red; internally, white, with a reddish tinge, which in drying changes in some parts to a yellowish colour. They strike a black colour with sulphate of iron, and give out their active matter both to water and rectified spirit.



**MEDICAL PROPERTIES.**—Amongst the ancients there was a root employed as a celebrated antiscorbutic, termed by them *herba britannica*, which Muntingius in a prolix Latin work, written at the end of the seventeenth century, endeavours to prove to be the water-dock. He further states that its name *britannica* was not derived from its English growth, but from Teutonic words, expressive of its power of fastening loose teeth, or of constringing the gums. The roots are certainly strongly astringent, and may be successfully employed for the above-mentioned purposes; and for hæmorrhage from the bowels, especially when dependent on attacks of scurvy. The leaves, which are somewhat acid, have been occasionally employed to obviate habitual costiveness.

A decoction of one ounce of the sliced root of the Patience Dock, *Rumex Patientia*, in a pint of water, is said to be extremely efficacious in obstinate ichthyosis—a disease of the skin, resembling fishes-scales.\* In a full dose, it operates as a cathartic, and at the same time improves the tone of the stomach. Hence it is sometimes called Monk's Rhubarb, though that is now retained rather for the *Rumex Alpinus*.

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## RUMEX ACETOSA.—Common Sorrel.

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**SPEC. CHAR.** *Flowers* diœcious. *Leaves* oblong, arrow-shaped. *Petals* tuberculated.

*Syn.*—*Lapathum acetosum vulgare. Raii. Syn.* 143.

*Oxalis. Fuchs. Hist.* 464. *f.*

*Oxalis sive Acetosa. Ger. Em.* 396. *f.*; *Matth. Valgr. v.* 1. 405. *f.*

*Lapathum. n.* 1597. *Hall. Hist. v.* 2. 274.

*Acetosa pratensis. Bauh. Pin.* 114.

*Rumex Acetosa. Lin. Sp. Pl.* 481; *Willd. v.* 2. 260; *Fl. Brit.* 396; *Eng. Bot. v.* 2. *t.* 127; *Hook. Scot.* 113; *Woodv. t.* 69.

**FOREIGN.**—*Oseille ordinaire, Fr.*; *Acetosa, It.*; *Acedra, Sp.*; *Sauer Ampfer, Ger.*

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**SORREL** is an indigenous perennial plant, common in meadows and grassy pastures throughout Europe, from the alps of Lapland to Greece; flowering early in June.

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\* *London Dispensatory, 2d. ed. p.* 486.

The root is long, tapering and fibrous, sending up several stems from one to two feet high, erect, round, simple, striated and leafy. The lower leaves have long footstalks; they are oblong, arrow-shaped, blunt, and marked with two lateral teeth at the base; the upper leaves are sessile, more oblong and narrower. The stipulas are tubular, membranous, and jagged at the summit. The flowers are diœcious in branched panicles, and disposed in whorls, upon short pedicels. The barren flowers are green and tinged of a reddish colour. The petals are three, ovate, rather larger than the calyx, which latter is reflexed when in fruit. The fertile flowers are on a separate plant, and of a redder colour than the barren ones. The petals are ovate, obtuse, red, entire, each bearing a pale oblong tubercle. The filaments are very short, furnished with large yellow 2-lobed anthers; the germen is triangular, and supports three reflexed styles with large crimson bearded stigmas. The seeds are triangular.

QUALITIES.—The leaves are inodorous, but have a very grateful acid taste, owing to the presence of the superoxalate of potass, which may be extracted from them, and purified by crystallization. The same acidity occurs in the leaves of *Rheum compactum*, *Oxalis acetosella*, and several other plants.

MEDICAL PROPERTIES AND USES.—The expressed juice of Sorrel diluted with water is sometimes used as an agreeable refrigerant drink in inflammatory fevers, and occasionally the leaves are boiled in milk to form a pleasant whey. They have also been employed with advantage, when eaten raw, in large quantities daily as a salad, in scurvy, and some cutaneous diseases. For culinary purposes the French sorrel, (*Rumex scutatus*, L.) being more gratefully acid, is generally preferred to common sorrel; and a third species, the *R. arifolius* of the “*Flore Française*,” is reckoned by the Parisians still more delicate than either of the others.







*Esculus Hippocastanum.*



ÆSCULUS HIPPOCASTANUM.

*Common Horse Chesnut.*

*Class VII. HEPTANDRIA.—Order I. MONOGYNIA.*

*Nat. Ord. TRIHILATÆ, Lin. ACERA, Juss.*

GEN. CHAR. *Calyx* 1-leaved, 5-toothed, swelled out.  
*Corolla* four or five irregularly coloured petals inserted into the calyx. *Capsule* 3-celled.

SPEC. CHAR. *Leaves* digitate, with seven leaflets.  
*Corolla* 5-petalled. *Capsules* prickly.

*Syn.*—*Castanea Equina*, *Ger. Em.* 1442; *Park*, 1401; *Raii. Hist.* 1683.

*Castanea folio multifido*, *Bauh. Pin.* 419.

*Hippocastanum*, *n.* 1029; *Hall. Hist. v.* 1. 442.; *Clus. Hist. p.* 7.

*Æsculus Hippocastanum*, *Lin. Sp. Pl.* 488; *Willd. v.* 2. 285; *Woodv.* 349.;  
*Hort. Kew. v.* 2. 335.

FOREIGN.—*Marronnier d'Inde*, Fr.; *Castagno d'India*, It.; *Castanheiro da India*, Port.; *Roskastanienbaum*, Ger.; *Paardenkarstengeboom*, Dut.; *Hestekastagnetræ*, Dan.; *Hætkastagnier*, Swed.; *Konskoi kastan*, Russ.

THIS magnificent, and beautiful tree, is a native of the north of Asia, but has been cultivated in almost every part of Europe since its introduction by Clusius, about the middle of the sixteenth century. It is of rapid growth, and when, in May, it is covered with its digitate foliage, and large handsome spikes of white flowers, constitutes one of the most striking ornaments of our parks, and avenues.\*

The common horse-chesnut frequently rises to a great height;

\* There are four species of this genus, viz. the subject of the present article; the *Æsculus flava*, or yellow-flowered horse-chesnut, a native of North Carolina, having leaves digitate, with five leaflets, the lamina of the corolla cordate, and the claws twice the length of the calyx; the *Æs. pavia*, or scarlet horse-chesnut, a native of Carolina, Florida, and Brazil, which has flowers with eight stamens, digitate leaves, with five or six serrate leaflets, smooth capsules, lamina of the corolla obovate, and claws the length of the calyx; and the *Æs. parviflora*, or *macrostachys* of Michaux, a native of North America, with a long thick spike, and a shrubby stalk.

and from the lower part of the trunk sends off numerous spreading branches, covered with a rough brown bark; the wood is white and soft, but soon decays, and is of little value. The leaves, sustained on long foot-stalks; they are large and digitated, with seven leaflets, proceeding from a common centre, the middle one being the largest, and the lateral ones on each side gradually decreasing in size; the leaflets are of a spatulate form, pointed, serrated, ribbed, and of a bright green colour. The flowers stand on short foot-stalks, and are disposed in large, conical, erect spikes, at the extremity of the branches. The calyx is of a pale green colour, monopetalous, bell-shaped, and divided at the margin into five blunt teeth: the corolla is composed of five petals, which are ovate, slightly waved at the edges, spreading and inserted into the calyx by narrow claws, of a white colour, and marked immediately above the claw, with a yellow, or reddish spot. The filaments are awl-shaped, about the length of the corolla, curved, and supporting reddish, oblong, double anthers; the germen is cylindrical, furnished with a short style, and pointed stigma. The fruit is a coriaceous, roundish, 3-celled, 3-valved capsule, armed externally with short spines, and usually containing two subglobular seeds or nuts.—Fig. (*a*) represents the calyx; (*b*) a back, and front view, of the stamens; (*c*) the germen, and style.

Though the Spanish-chesnut was well known to the ancients, and is several times referred to by Virgil, under the name of *Castanea*, it appears that the *horse-chesnut* was introduced into Europe about the year 1550; and Matthioli, who gives a figure of the tree, seems to be the first who described it.\* In the time of Clusius it was so scarce that but one tree existed in Vienna, which being too young to bear fruit, nuts were obtained from Constantinople in 1388,† after which, it was very generally propagated. In 1633 it was cultivated in England by Mr. John Tradescant, and is now so common as to be known to every one, as a favourite ornamental tree, which grows rapidly, blossoms early, and forms an excellent shade.

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\* Constantinopli primum ad me allatæ sunt.—Matthioli, *Compendium de plantis omnibus*. Ed. Venet. p. 101.

† Woodville.



QUALITIES AND CHEMICAL PROPERTIES.—The fruit consists almost entirely of fecula. The bark, which is inodorous, is bitter, astringent, and slightly aromatic. It yields its virtues both to water, and proof spirit. The sulphates of iron, and zinc, throw down from the infusion, dark-coloured precipitates; while oxymuriate of mercury and superacetate of lead precipitate it white. Tartar emetic effects no change in it. Gelatin precipitates a small portion of tannin. A new vegetable principle, named *esculine*, which is said to possess alkaline properties, has lately been discovered in *Æsculus Hippocastanum*, by M. Carzoneri, and on it, the febrifuge virtues of the bark are supposed to depend.

ECONOMICAL USES.—The wood, as we have already mentioned, is soft, and soon decays; excepting when made into pipes for conducting the water underground, when it is said to last many years. Horses are said to eat the fruit greedily—hence the name; and it is asserted, that coughs and pulmonary affections in these animals have been much relieved by it. Sheep, goats, and deer, also fatten on it; but, prior to giving the nuts to the former, it has been considered necessary to macerate them in caustic alkali, to destroy their bitterness; afterwards to wash them in water, and boil them into a paste. Lime water is said to answer as well. M. Raiment of Anjou, was in the habit of mixing them with the provender for his cows, and states, that the quantity of their milk was thereby increased. They have been employed in France, and Switzerland, for bleaching yarn, and are recommended as of extensive use in whitening flax, hemp, silk, and wool. They contain a saponaceous juice, that is obtained by grinding or rasping them, after which they are mixed with hot, or running water, in the proportion of twenty nuts, to ten, or twelve quarts of water. Wove caps and stockings have been milled in it, and took the dye remarkably well; and successful trials have been made for fulling stuffs and cloths. Linen washed in this water takes a pleasing blue colour, and the filaments of hemp, steeped in it some days, were easily separated. The sediment, after infusion, loses its bitter taste, and becomes excellent food for fowls when mixed with bran. Deprived

of their acrimony and bitter taste, the fruit might be converted into proper food for men in times of scarcity. In 1796, Lord Murray obtained a patent for extracting starch from it. The bark yields a yellow dye.

**MEDICAL PROPERTIES AND USES.**—The bark, which, for use, should be about three years old, was first recommended as a febrifuge by Zannuchelli; and several other continental physicians have subsequently written accounts of its efficacy in intermittent, and other fevers. The hyperbole, however, in which they dealt, some averring it to be superior to cinchona, produced an effect, which we suspect is not entirely deserved. We therefore strenuously recommend some of our Cambridgeshire, or Lincolnshire friends, to put it again to the test of repeated experiments, and to favour us with the result, which we shall be happy to publish in our next edition.

A strong decoction has been commended as a lotion in gangrene; and four grains applied to the nostrils at night, are said to act mildly in the morning, as an errhine.

**DOSE.**—From half, to one drachm of the powder, every four hours. Of the *decoction*, made with an ounce and a half of the bark to a pint of water, about two ounces may be given.







*Amyris gileadensis.*

G. Reid. del.

Weidell sc.



## CLVII

### AMYRIS GILEADENSIS.

*Balsam of Gilead-tree.*

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Class VIII. OCTANDRIA—Order I. MONOGYNIA.

Nat. Ord. TEREBINACEÆ, Juss.

GEN. CHAR. *Calyx* four-toothed. *Petals* four, oblong. *Stigma* quadrangular. *Berry* drupaceous.

SPEC. CHAR. *Leaves* ternate; leaflets entire; peduncles, one-flowered, lateral.

Syn.—Balsamum. *Theophr.* l. 9. c. 6; *Plin.* l. 12. c. 25; *Justin.* l. 36. c. 3; *Bellon.* 110.

Balsamum syriacum, rutæ folia. *Bauh. Pin.* 400.

Balsamum verum. *Bauh. Hist.* 1. 298; *Raii. Hist.* 1755.

Balsamum Alpini cum Carpobalsamo. *Ger. Em.* 1528.

Balsamum, ab ægyptiis Balessan. *Alpin. Ægypt.* p. 48. t. 60.

Balsamea meccanensis. *Gleid. Act. Soc. Berol.* 3. p. 127. t. 3. f. 2.

Balsamodendron Gileadense. *Decand. Prodr.* t. 2. p. 76.

Amyris Opobalsamum. *Forsk. Ægypt.* p. 79; *Niebuhr.* v. i. 307.

βαλσάμουν δένδρον. *Theophrasti et Dioscoridis.*

Amyris gileadensis. *Lin. Mantis.* 65; *Diss. de Opobals.* 1764; *Willd.* v. 2. p. 333. *Vahl. Symb.* i. 28. t. 11; *Lam. Ill.* t. 303. f. 2; *Woodv.* v. 3. t. 192; *Stokes.* 2. 357.

FOREIGN.—Balsamier de la Mecque, Fr.; Balsamino di Gilead, It.; Gileadischer Balsamstrauch, Ger.

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This species of amyris, which affords the balsam of Gilead or Mecca, the most precious of the balsams, is a native of Arabia, and was found by Forskal, and also by Niebuhr, growing spontaneously in the mountains of the province of Yemen. The balsam-tree, though not a native of Judea, was cultivated with great perfection many centuries before Christ in the gardens near Jerico, on the banks of the Jordan;\* and it was from Gilead in Judea, whence the merchants brought the resinous product to Egypt, that it derived its appellation of *Balsam of Gilead*. Since the conquest of Palestine by the Romans, Mr.

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\* See Josephus *de Bel. Jud.* lib. i. c. viii. sect. 6.

Buckingham says the balsam-tree has entirely disappeared, and that not one is now to be found;\* but Burckhardt asserts, that it is still partially cultivated in the gardens near the lake of Tiberias.† Mr. Bruce informs us that it is a native of Abyssinia, growing among the myrrh-trees behind Azab, all along the coasts to the straits of Babelmandel.‡

It is an evergreen shrub or tree, seldom exceeding fourteen feet in height, having a flat top, like trees that are exposed to snow blasts or sea air, which gives it a stunted appearance. The trunk is about eight or ten inches in diameter, with many spreading, crooked, purplish branches, having protuberant buds loaded with aromatic resin. The wood is light and open, incapable of receiving a polish, resinous, externally of a reddish colour, and covered with a smooth ash-coloured bark. The leaves are thinly scattered, small, composed of one or two pairs of opposite leaflets, with an odd one; the leaflets are sessile, obovate, entire, veined, smooth, and of a bright green colour. The flowers proceed from the buds by threes; they are small, white, and furnished with a minute slightly bifid bractea, sheathing the base of the pedicel. The calyx is permanent, and divided into four spreading segments; the petals are four, oblong, concave, spreading: the filaments are eight, tapering, erect, bearing erect anthers: the germen is superior, ovate, with a thick style, the length of the filaments, terminated by a quadrangular stigma. The fruit is of a reddish-brown colour, oval, very slightly compressed, pointed, four-valved, and containing a somewhat pointed, smooth nut, flattened on one side, and marked with a longitudinal furrow.

Balm or balsam, is a term commonly applied to resinous substances, which exudes spontaneously from certain plants. It serves very properly to express the Hebrew word *רֶשֶׁת*, which in the Septuagint is rendered *ρητινμ*, and by the ancients is indiscriminately interpreted *resin*. But Kimchi, and other moderns have understood the Hebrew noun to designate that particular spe-

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\* *Travels in Palestine*, pp. 299 and 300.

† *Travels in Syria*, pp. 323 and 324.

‡ *Bruce's Abyssinia*, App. p. 16.



cies formerly called "*balsamum*" or *opobalsamum*, and now distinguished by the name of *balsamum judaicum*, or *balsam of Gilead*: celebrated by the ancients for its costliness, its medical virtues, and for being the product of Judea only, and of a particular spot there; which Josephus attributes to the neighbourhood of Jericho, but says that the tree was, according to tradition, originally brought by the Queen of Sheba to King Solomon from Arabia Felix, the country that now principally supplies the demand for that precious drug.

The great value set upon this drug in the East is traced to the earliest ages. The Ishmaelites, or Arabian carriers and merchants, trafficking with the Arabian commodities into Egypt, brought with them מִלֵּךְ as a part of their cargo. (Genesis xxxvi. 25, xliii. 11.) Strabo alone, of all the ancients, has given us the account of the place of its origin. "In that most happy land of the Sabæans," says he, "grows the frankincence; and in the coast that is about Saba, the balsam also." Among the myrrh-trees behind Azab, says Mr. Bruce, all along the coast is its native country. We need not doubt that it was transplanted early into Arabia, that is, into the south parts of Arabia Felix immediately fronting Azab, where it is indigenous. The first plantation, says he, that succeeded seems to have been at Petra, the ancient metropolis of Arabia, now called Beder or Beder Humhin.

Notwithstanding the positive authority of Josephus, referred to above, and the great probability that attends it, it is observed by Bruce\* that his account cannot be put into competition with that of the Scriptures, which 1730 years before Christ, and 1000 before the Queen of Sheba, says, "A company of Ishmaelites came from Gilead with their camels, bearing spicery, and balm, and myrrh, going to carry it down into Egypt;" (Gen. xxxvii. 25;) from which it is evident that it had been transplanted into Judea, flourished there, and had become an article of commerce in Gilead long before the period he mentions. Now the spicery or possession was entirely purchased by the Ishmaelites at the mouth of the Red Sea, the market for Indian

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\* *Travels*, vol. vii. p. 149.

goods: and at the same place they must have brought the myrrh, which does not, nor did grow any where else than in Sabo or Azabo, east of Cape Gardefan, where the ports of India were, from whence it was dispersed all over the world.

Theophrastus, Dioscorides, Pliny, Tacitus, Serapion, Justin, Strabo, Diodorus Siculus, and Solinus, speaking of its costliness, all say that it came from India. The words of Pliny are, “ But to all other odours whatever, the balsam is preferred, produced in no other part but the land of Judea, and was there in two gardens only, both belonging to the king.” At this time, continues Mr. Bruce, I suppose it got its name of *balsamum judaicum*, or balm of Gilead; and thence became an article of merchandise and fiscal revenue, which probably occasioned the discouragement for bringing any more from Arabia, whence it was probably prohibited as contraband. We shall suppose that thirty acres planted with this tree would have produced more than all the trees of Arabia do at this day. Nor does the plantation of Beder Humkin amount to much more than that quantity, for we are still to observe that when it had been, as it were, naturalized in Judea, and acquired a name in that country, still it bore evident marks of being a stranger there; and its being confined to the royal gardens alone, shows that it was maintained by force and culture, and was by no means a native of the country; and this is confirmed by Strabo, who speaks of it as being in the king’s palace and garden at Jericho. This place being one of the warmest in Judea, indicates their apprehensions about it.

Josephus, speaking of the vale of Jericho, says, “ Now here is the most fruitful country in Judea, which bears a vast number of palm-trees, *besides the balsam-tree*, whose sprouts they cut with sharp stones, and at the incisions they gather the juice which drops down like tears.” The balsam produced by these trees was of such consequence as to be noticed by all the writers who treated of Judea. Pliny says,\* “ This tree, which was peculiar to Juris, or the Vale of Jericho, was more like a vine

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\* *Natural History*, c. 25.



than a myrtle." Vespasian and Titus carried, each of them one, to Rome, as rarities; and Pompey boasted of bearing them in triumph. When Alexander the Great was in Judea, a spoonful of the balsam was all that could be collected on a summer's day; and in the most plentiful year, the great royal park for these trees, yielded only six gallons, and the smaller one only one gallon. It was consequently so dear, that it sold for double its weight in silver. But from the great demand for it, adulteration soon followed, and a spurious sort was substituted. Justin makes this tree the source of all the national wealth. Speaking of the balsam, he says, "The wealth of the Jewish nation arose from the opobalsamum, which doth only grow in those countries; for it is a valley like a garden, which is surrounded by hills, and inclosed as it were with a wall. It is called Jericho. In the valley is a wood, admirable for its fruitfulness, as for its delightfulness, being intermingled with palms and opobalsamum-trees. The latter have a resemblance to firs, but are lower, and are planted and husbanded like the vine; and on a set season of the year sweat balsam."\* In the estimate of the revenues which Cleopatra derived from the regions round about Jericho, which had been given her by Antony, and which Herod afterwards farmed of her," it is said, "this country bears that balsam which is the most precious drug that is there, and grows there only."† The balsam is mentioned in the scriptures, under the name of "Balm of Gilead." (Jer. viii. 22; chap. xlv. 11; chap. li. 8.)

QUALITIES AND CHEMICAL PROPERTIES.—Balsam of Gilead, or of Mecca, says Mr. Milburn,‡ is a resinous juice that distils from a tree, or shrub, growing between Mecca and Medina. The tree is scarce; the best sort is said to exude naturally, but the inferior kinds are extracted by boiling the branches. It is at first turbid and white, of a strong pungent, agreeable aromatic smell, and slightly bitter acrid taste; upon being kept, it becomes thin, limpid, of a greenish hue, then of a golden yellow colour, and, at length, like honey. The *opobal-*

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\* Justin's *History*, lib. 36.

† Josephus, *Ant. Jud.* lib. xv. civ. sect 2.

‡ *Oriental Commerce*, p. 71.

*samum* of the ancients, was the green liquor found in the kernel of the fruit; the *carpobalsamum*, the most in esteem, was expressed from the ripe fruit, and *xylobalsamum* from the small twigs after decoction. It is extremely liable to adulteration, and from its high price and scarcity, we believe that a single ounce of the genuine Balsam of Gilead\* is not to be obtained in this country, or even in Europe. To spread when dropped into water, all over the surface, to form a thin iridescent pellicle, so tenacious that it may be taken up entire with the point of a needle, were formerly infallible criteria of the genuine article. It has, however, been observed, that other balsams, when of a certain degree of consistence, exhibit these phenomena equally with the Balsam of Gilead. Mr. Bruce says, if the balsam be dropped on a woollen cloth, in a pure state, it may be washed out completely and readily with simple water. Dried Canada balsam, or the resinous juice which exudes from the *Pinus balsamea*, is at the present day generally substituted for the real, and if it does not possess its odour, it is equally efficacious.

**MEDICAL PROPERTIES AND USES.**—This balsam is highly prized among Eastern nations, particularly by the Turks and Arabs, both as a medicine and odoriferous unguent and cosmetic. It has been highly extolled as a powerful antiseptic, vulnerary, and preventive of the plague. In its medicinal properties it agrees with the balsams of Tolu, Peru, and others of the same class; but its great scarcity has prevented it from coming into use among European practitioners.

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\* **SOLOMON'S CORDIAL BALM OF GILEAD.**—We do not find on examination that this once famous nostrum contains a single grain of the drug whose name it bears. It is, in fact, merely an aromatic tincture of which Cardamoms form a principal ingredient, made with brandy, and containing also a portion of tincture of cantharides. It is, therefore, highly stimulating, and in undue quantities must produce the most deleterious effects on the human body.







*Daphne Mezereum.*

W. Clark. del.



## DAPHNE MEZEREUM.

*Common Mezereon, or Spurge-olive.**Class VIII. OCTANDRIA.—Order I. MONOGYNIA.**Nat. Ord. VEPRECUŁÆ, Lin. THYMALEÆ, Juss.***GEN. CHAR.** *Calyx* coloured, inferior, 4-cleft.  
*Berry*, 1-seeded.**SPEC. CHAR.** *Flowers* sessile, in threes, on the stem.  
*Leaves* lanceolate, deciduous.*Syn.*—*Chamelæa Germanica*, sive *Mezereon*, *Ger. Em.* 1402.*Daphnoides*, *Matth. Valgr.* v. 2. 557. *f.*; *Camer. Epit.* 937. *f.*; *Fuchs. Hist.* 227. *f.**Thymelæa*, n. 1024. *Hall. Hist.* 227. v. 1. 438.*Daphne Mezereum*, *Lin. Sp. Pl.* 509; *Willd.* v. 2. 415; *Fl. Brit.* 420;  
*Eng. Bot.* v. 20. t. 1381; *Woodv. t.* 23; *Stokes*, v. 2. 372; *Fl. Dan.* t. 268; *Bull. Fr. t.* 1.**FOREIGN.**—*Laureole Gentile*, Fr.; *Mezereo*, *Daphnoide*, *Biondella*, It.; *Laureolahembra*, Sp.; *Mezereo major*, Port.; *Kellerkals*, Ger.; *Woltschje luko*, Russ.

MEZEREON is a low shrub, which occurs wild in some parts of England, and produces its flowers in March. It is first mentioned as a native of our island, by Miller, who found it plentifully near Andover, in Hampshire. Since that it has been found in several other places, as at Laxfield, in Suffolk; in Needwood forest, Staffordshire; in the beech-woods in Buckinghamshire; at Eastham, and Stanford, Worcestershire; near Appleton, Berks; and in Wich-wood Forest, Oxfordshire. On the 10th of February, 1828, we observed it in full flower in the gardens near London, above three weeks before its average time of blowing,—a striking proof of the very remarkable mildness of the season.

It has a strong root, which gives off a number of small slender fibres covered with a smooth olive-coloured bark. The stem is bushy, with nearly upright alternate branches, covered with a smooth grey bark, and seldom growing above four, or five feet high. The leaves are deciduous, lanceolate, scattered, smooth,

stalked, about two inches long, and half an inch broad, appearing after the flowers, and accompanied by flower-buds for the next season. The flowers are disposed in clusters, about three together, on the naked branches, with several smooth, ovate bracteas underneath; they are of a pale rose-colour, fragrant, sessile, monopetalous, tubular, with the lip divided into four deep ovate, spreading segments. The calyx, which constitutes what is usually denominated the flower, resembles a *corolla* in texture, and contains the stamens. The filaments are eight, alternately shorter, inserted into the tube, and supporting roundish oblong anthers. The germen is ovate, superior, bearing a flat-tish, entire stigma, on a very short style. The fruit is a pulpy scarlet berry, containing a single seed, and is the favourite food of some species of Finch. Of this species of *Mezereon* there is a variety with white flowers, and yellow or orange-coloured berries. —Fig. (a) represents the calyx spread open, to show the insertion of the stamens; (b) a seed.

QUALITIES.—The bark of the root, which is the part used in medicine, is united to the ligneous fibre by a woolly substance. The recent bark is very acrid, and when chewed, powerfully excites the salivary glands, and creates burning sensations in the mouth, which last for a considerable time. M. Vauquelin has discovered a new vegetable principle in the *DAPHNE alpina* and *D. gnidium*: but we have not learnt that it has been found to exist in the *D. Mezereum*.

POISONOUS EFFECTS.—Several species of *Daphne* are poisonous, and the berries of this plant prove so to man, dogs, wolves, and foxes.\* Linneus reports, that a young lady, labouring under intermittent fever, died from hæmoptysis, in consequence of having taken twelve berries of the *Daphne Mezereum*, which had been given with the intention of purging her;† and Vicat states, that an hydropic patient having taken the wood of *Mezereon*, was suddenly attacked with diarrhœa, which was continual, and accompanied with insupportable

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\* *Semina ejus in cadaveribus abscondita exhibentur a rusticis Sueciæ lupis et vulpibus, quibus adsumtis pereunt sine mora æque ac a seminibus Strychni.* Linneus *Flora Lapponica*, p. 105

† *Flora Suecia*, No. 338.



pains. He had beside, for six weeks, vomitings, which returned every day with extreme violence; although, during the whole time, proper remedies were employed in order to quiet them.\*

M. Blatin also narrates the case of a person who took a decoction of the root of Mezereon, instead of marsh-mallow. It occasioned violent pain in the stomach and intestines, accompanied by strong burning sensations in the skin, restlessness, loss of appetite, intense fever, and irregular actions of the tendons. These symptoms were relieved by drinking copiously of a sweetened decoction of marsh-mallow.†

**MEDICAL PROPERTIES AND USES.**—It is very generally allowed that Mezereon is a stimulating diaphoretic, useful in chronic rheumatism; but Dr. Donald Monro, Dr. Russel, Dr. Fothergill, and several other eminent men, have described it as capable of curing venereal nodes, scirrhus tumours, obstinate ulcers, and severe affections of the skin. The extensive experience, however, of that able and scientific surgeon, the late John Pearson, by no means supports the character it had obtained; and as his book is in the hand of but few persons, and cannot be obtained, we are happy to be able to record his opinions:

“Dr. Russel’s account of the virtues of Mezereon,” says, Mr. Pearson, “is delivered with so much candour and fairness, that if it be not calculated to excite high expectations, it certainly contains nothing that can mislead. The seventeen cases which Dr. Russel has recorded, do by no means warrant a stronger form of expression than that which he has adopted; and, although Dr. Home has asserted, that ‘this root is a powerful deobstruent in all venereal tumours of the scirrhus kind, when mercury has failed;’ the evidence he has adduced of this fact, is so scanty and insufficient, that it can scarcely be regarded as forming an addition to Dr. Russel’s prior report. From all that I have been able to collect, I feel myself authorized to assert, unequivocally, that the Mezereon has not the power of curing the venereal disease in any one stage, or under any form. If a decoction of this root can reduce a venereal node, when no mer-

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\* *Histoire des Plantes Vénéneuses de la Suisse*, p.140.

† Roque’s *Phytographie Médicale*.

cury has been previously given, yet the patient will by no means be exempted from the necessity of employing mercury, for as long a space of time, and in as large a quantity, as if no Mezereon had been taken." Speaking of its power of removing venereal nodes, Mr. P. remarks, "I have given the Mezereon in the form of a simple decoction; and also as an ingredient in compound decoctions of the woods, in many cases where no mercury had been previously employed; but never with advantage to a single patient. I have also tried it in numerous instances, after the completion of a course of mercury: yet with the exception of two cases, when the thickened state of the periosteum was removed during the exhibition of it, I never saw the least benefit derived from taking this medicine. In a few cases of anomalous pains, which I supposed were derived from irregularities during a mercurial course, the Mezereon was of service, after I had tried the common decoction of the woods without success; but, even in this description of cases, I have always found it a very uncertain remedy." In scrofulous cases, when the periosteum was diseased, Mr. P. saw no benefit derived from it; neither did he ever see it do good in cutaneous affections, excepting in two instances of lepra, in which the decoction conferred a temporary benefit. Mr. P. concludes by saying, "Indeed the Mezereon is of so acrimonious a nature, often producing heat, and other disagreeable sensations in the fauces; and, on many occasions disordering the primæ viæ; that I do not often subject my patients to the certain inconveniences which are connected with the primary effects of this medicine, as they are rarely compensated by any other important, and useful qualities."\*

It has been asserted by some of our English authors, that the bark of the *Daphne Mezereum* is used in France to produce vesication, and to keep up the formation of pus from issues; but, on referring to Bergius, and to the *Pharmacopée Française*, we find it to be the produce of the *D. gnidium*.

OFF. PREP.—Decoctum Sarsaparillæ Comp. *L.*

Decoctum Daphnes Mezerei. *E.*

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\* *Observations on the Effects of various Articles of the Materia Medica, &c.* p. 44.







*Polygonum Bistorta.*

*From the original*



POLYGONUM BISTORTA.

*Great Bistort, or Snake-weed.*

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*Class VIII. OCTANDRIA.—Order III. TRIGYNIA.*

*Nat. Ord. HOLERACEÆ, Lin. POLYGNOEÆ, Juss.*

GEN. CHAR. *Corolla* 5-parted, calycine, inferior.  
*Seed* 1, naked.

SPEC. CHAR. *Stem* simple, bearing one spike. *Leaves* ovate, waved, the radical ones running down into the footstalks.

*Syn.*—*Bistorta*, *Matth. Valgr. v. 296. f.*; *Camer. Epit. 683. f.*

*Bistorta major*, *Ger. Em. 399. f.*; *Raii Syn. 147.*

*Bistorta major*, radice minùs intortâ, *Bauh. Pin. 192*; *Mill. Ic. 44. t. 66.*

*Serpentaria mas*, seu *Bistorta*, *Fusch. Hist. 773. f.*

*Polygonum Bistorta*, *Lin. Sp. Pl. 516*; *Willd. v. 2. 441*; *Eng. Bot. v. 8. t. 509*; *Curt. Lond. fasc. l. t. 22*; *Hook. Scot. 120*; *Woodv. t. 34*; *Stokes, v. 2. 394*; *Bull. Fr. t. 314.*

PROVINCIALY. *Bistort*; *Oyster loit*; *Adder's-wort*; *Passions*, Cheshire;  
*Easter Giant*, *Patience Dock*, Manchester; *Stoins*, Ireland.

FOREIGN.—*Bistorte*, Fr.; *Bistortat*, It. Sp. Port.; *Natter-wurzel*, Ger.;  
*Slangeort*, Dan.; *Sertechuaja trawa*, Russ.

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BISTORT is an indigenous perennial plant, growing abundantly in many parts of Britain, particularly in the northern counties, where it frequently proves a very troublesome weed. We found it in large patches in the meadows at Battersea, and also on the north side of Bishop's Wood near Hampstead, where it is said to have grown for more than half a century. It flowers in May and June.

The root is creeping, woody, and generally more or less bent and crooked; it is about the thickness of a finger, surrounded with slender fibres, of a brownish black colour on the outside, and reddish within. The stem is solitary, simple, erect, about a foot or eighteen inches in height, round, swelling at the joints, striated and smooth. The leaves are entire, ovate, smooth,

somewhat flexuose, of a bright green colour above, and glaucous beneath; the radical ones are somewhat cordate, pointed, and stand upon long winged, or rather decurrent footstalks; those of the stem are almost sessile, amplexicaule, having tubular, sheathing footstalks, each furnished with membranous stipulæ. The flowers terminate the stem in a close cylindrical spike, about two inches in length; each of them stands single on very short slender stalks, with membranous, notched, brown bracteas at the base. The calyx is rose-coloured, and deeply divided into five obtuse segments; the stamens are eight, tapering, longer than the calyx, and supporting purple anthers; the germen is triangular, bearing three distinct styles, with small obtuse stigmas. The seeds are triangular, black, and shining. Fig. (a) represents a perfect flower magnified; (b) the germen and styles.

According to Professor Alston, the name of this plant, *Bistorte*, *quasi bis torta*, twice twisted or wreathed, is of modern date; for it was formerly termed *Serpentaria*, *Colubrina*, and *Dracunculus*, Hoffman remarking, “*Radix est serpentis modo intorta.*” The generic name *Polygonum*, is adopted from Dioscorides, whose *πολληγονον αρρην*, or male polygonum, is regarded as our *P. aviculare*, or common knot-grass.

QUALITIES.—The root of Bistort, the part used in medicine, is inodorous; but to the taste very astringent. It gives out its virtues to water, and “turns a solution of green vitriol to ink.”

MEDICAL PROPERTIES AND USES.—Bistort is really a very powerful astringent, and appears to be neglected merely because it grows in almost every meadow. The powdered root, in doses of a drachm, will be found useful in hæmorrhage, diarrhæa, and chronic dysentery; and combined with bitters, has been recommended for the cure of intermittent fever, by Dr. Cullen. By the following quotation from Gerarde it will be seen, that its virtues were much better appreciated in former times: “The iuyce of Bistort, put into the nose, preuaileth much againste the the disease called Polypus. . . . . The root boyled in wine, and drunke, stoppeth the laske and bloody flix; it stayeth also the ouermuch flowing of women’s monethly sicknesses. The roote taken as aforesaid, stayeth vomiting, and healeth the inflammation and sorenesse of the mouth and throat: it likewise fastneth loose teeth, being holden in the mouthe for a certain space, and at sundry times.”







*Paris quadrifolia.*



## PARIS QUADRIFOLIA.

*Herb Paris, or One-berry.*

Class VIII. OCTANDRIA.—Ord. IV. TETRAGYNIA.

Nat. Ord. SARMENTACEÆ, Lin. ASPARAGI, Juss.

GEN. CHAR. *Calyx* 4-leaved. *Petals* 4. *Berry* 4-celled, superior.SPEC. CHAR. “*Leaves* ovate, about four.” *Smith*.*Syn.*—Herba Paris. *Raii. Syn.* 264, 1; *Ger. Em.* 405. *f.*; *Park. Theatr.* 390; *Camer. Epit.* 835. *f.*Paris, n. 1006. *Hall. Hist. v.* 1. 429.*Solanum quadrifolium bacciferum*, *Bauh. Pin.* 167.*Uva lupulina*, seu *Aster*, *Trag. Hist.* 307. *f.* 308.*Aconitum pardalianches*, *Fuchs. Hist.* 87. *f.* Ic. 48. *f.*Paris quadrifolia, *Lin. Sp. Pl.* 526; *Willd. v.* 2. 471; *Fl. Brit.* 431.FOREIGN.—*Parisette*; *Raisin de renard*, Fr.; *Uva di volpe*, It.; *Ubas de zorro*, Sp.; *Die Einbeere*; *Wolfsbeere*, Ger.; *Etbær*, Dan.; *Trollbar*, Swed.; *Woronei glas*, Russ.

OF the genus Paris, two species only are known, *Paris quadrifolia*, which is a native of most countries of Europe, and *Paris polyphylla*, a plant which has lately been discovered in Nepal. The former is a perennial plant, growing in groves and moist woods in many parts of Britain, but rare. It grows plentifully in a grove at Cossey, near Norwich, and was found by Mr. Miller, in a wood near Hampstead; by Mr. Blackstone, in Hanging-wood, near Harefield, Middlesex; at Selborne, in Hampshire, by Mr. White; at Kimbolton, by our friend Mr. Fernie; and in Scotland, in a wood, about a mile south of Newbattle, near Dalkeith, by Dr. Parsons. It flowers in May and June.

The root is creeping. The stem rises about a foot high; it is simple, erect, smooth, round, and naked, except at top. The

leaves, whose number is usually four, sometimes five or six, are ovate, pointed, entire, smooth, of a dull green colour, with three principal veins, and spreading horizontally in a sort of whorl on the top of the stem. The flower is solitary, on an erect angular peduncle, about an inch in length. The calyx consists of four lanceolate green leaves ; the corolla of four linear acute ones, of a similar colour, and both remain till the fruit be ripe. The stamens are short, beneath the anthers, which are long, and inserted on both sides into the base of the filaments. The germen is somewhat globular, of a violet colour, supporting four styles shorter than the stamens, with simple stigmata. The fruit is a purplish-black, four-celled berry, containing many seeds in a double series.

QUALITIES.—The leaves have a narcotic odour, and a peculiar taste, which is not disagreeable.

MEDICAL PROPERTIES.—Herb Paris is one of the tribe of vegetables called narcotic, which, when received into the stomach in any considerable quantity, produces violent effects upon the nervous system, such as nausea, vomiting, vertigo, delirium, and convulsions ; hence it has been ranked by most writers on the materia medica, among the class of poisons. Every part of the plant seems to possess this property, but the leaves and berries are supposed to be the most active. Linneus assures us that the root, in doses of twenty to forty grains, operates as a gentle emetic, like ipecacuanha. MM. Coste and Willemet, who have investigated with considerable ardour and success, the properties of plants indigenous to France, also recommend the root, in doses of from one to two scruples, as a substitute for that useful medicine. They state, that it sometimes operates as a purgative. Gesner asserts that the berries prove noxious to poultry ; and Krockner was credibly informed, that a child died in consequence of eating them. Bergius recommends the herb to be used externally in fomentations as a discutient, and internally as an antispasmodic in the whooping-cough, and various convulsive diseases. Parkinson says, “ the roots boiled in wine help the colic, and the leaves applied outwardly repress tumours and inflammations.” The root of the exotic species, Paris *polyphylla*, is known to be a very active poison.







*Saururus nobilis.*



## LAURUS NOBILIS.

*Common Sweet-bay.**Class IX. ENNEANDRIA.—Order I. MONOGYNIA.**Nat. Ord. OLERACEÆ, Lin. LAURI, Juss.*

GEN. CHAR. *Corolla* calyx-like, 4 or 6-cleft. Innermost *filaments* bearing glands. *Anthers* 2-valved, gaping at the base. *Drupe* superior, one-seeded.

SPEC. CHAR. *Leaves* lanceolate, veined, finely reticulated, evergreen. *Flowers* 4-cleft, diœcious, in short axillary clusters.

*Syn.*—*Laurus vulgaris*, *Bauh. Pin.* 460; *Tourn. Inst.* 597.

*Laurus*, *Matth. Valg.* v. 119; *Bauh. Hist.* v. 1. p. 1.409; *Camer. Epit.* 60;

*Ger. Em.* 1407.

Δαφνη, *Diosc. lap.* 1. cap. 106.

*Laurus nobilis*, *Lin. Sp. Pl.* 529; *Willd.* v. 2. 479; *Ait. Hort. Kew. ed.* 2d.

428; *Zorn. Icon.* 52; *Fl. Groca Sibth.* v. 4. t. 265.

FOREIGN.—*Laurier commun*, Fr.; *Alloro*, *Lauro*, It.; *Laurel*, Sp.; *Loiro*; *Loriero*, Port.; *Gemeine Lorbeerbaum*, Ger.; *Lagerbärsträd*, Swed.; *Lawr*, Russ.

THE Sweet-bay, which is a considerable tree in the South of Europe, appears but as a shrub in this country, producing its flowers only in sheltered situations in April and May. It is a hardy evergreen, a native of Italy and Greece; being without doubt the δαφνη of Dioscorides, and consequently the classical laurel.

In its native soil and climate the Sweet-bay frequently rises twenty or thirty feet in height; much branched, and covered with a smooth, olive-coloured bark. The leaves lanceolate about three inches long, but varying in size, on short, channelled foot-stalks, alternate, pointed, smooth, veined, entire, often waved at the margin, of a firm texture, and deep green colour. The flowers are male and female on different plants; they appear in short racemes, and stand upon short, smooth pedicels at the

axillæ of the leaves. The corolla in both descriptions of flowers, is divided into four oval, concave segments, which stand erect, and are of an herbaceous, or yellowish white colour. The filaments are as long as the calyx; the four outer ones simple, the rest compound, bearing two lateral glands, or abortive anthers. The true anthers are yellow, ovate, bilocular, and composed of two valves, diverging from the stamens, or gaping at the base. The style of the female flowers is very short, and the germen becomes an oval drupe, which is fleshy, very smooth, of a dark purple, almost black colour, and containing a large nut of a similar shape. Fig. (a) the male flower magnified; (b) the drupe or berry; (c) the nut.

QUALITIES.—Both the *leaves* and *berries* have a sweet odour, and an aromatic, astringent, bitter taste. The fruit yields by distillation a brown volatile oil: by expression and boiling in water, green fixed oil, which is recommended to be employed internally; but the article known in commerce by the name of *oil of bays*, is made by boiling the berries in hog's-lard, to which they impart their colour and some little odour. The leaves also contain prussic acid.

MEDICAL PROPERTIES AND USES.—The leaves and berries of this tree are somewhat carminative and sedative. In former times they were employed in flatulent colic, hysteria, and uterine affections, but they are never prescribed by modern practitioners, either internally or externally, and might without loss be expunged from the *materia medica*.







*Saururus cuneifolius.*



## LAURUS SASSAFRAS.

*Sassafras Laurel.*

SPEC. CHAR.—*Leaves* ovate, entire; two or three lobed.

Syn.—*Sassafras sive lignum pavanum. Bauh. Hist.* 148. 3.

*Sassafras arbor ex Florida, ficulneo folio. Bauh. Pin.* 431.

*Sassafras. Ger. Em.* 1528; *Park.* 1606; *Raii. Hist.* 2. 1568.

*Cornus mas odorata, folio trifido, margine plano, Sassafras dicta. Pluk. Alm.* 120. t. 222; *Catesb. Carolin.* 1. t. 55.

*Laurus Sassafras. Sp. Pl. Willd.* ii. p. 348; *Woodv. t.* 31; *Bigelow Amer. Med. Bot. t.* 35.

FOREIGN.—*Laurier Sassafras, Fr.; Sassafras, Port.; Sassafrassbaum, Ger.; Hoam Cham, Chin.; Cay Vaug dee, Cochin Chin.*

THE *Sassafras Laurel* is a native of North America, inhabiting every latitude from New England to Florida; and is also said to be found in Cochin China, and in the forests of Mexico and Brazil. It is perfectly hardy, bearing the severity of our northern climate, and is sometimes planted in gardens as an ornamental tree. There is a fine *Sassafras* tree in the royal garden at Kew; and our figure was taken from a specimen growing in the nursery of Mr. Lee, at Hammersmith.

The *Sassafras* tree of the United States, according to Dr. Bigelow, arrives, in favourable situations, to a tall stature and large circumference. The bark of the trunk is much cracked and of a greyish colour; but the young twigs are of a reddish green. The leaves are remarkable for the variety of their form on the same tree; those which proceed first from the bud being oval, entire, and about four inches long; the next of the same form with a lobe on each side, while the last have regularly three lobes. They are alternate, of a bright green colour, petioled, downy when young, but become smoother by age. The flowers, which appear in May and June, immediately under the leaves before they begin to evolve, are small, of a pale green colour, and disposed in short pendant panicles. The flowers are often imperfect as to the parts of fructification, which has led to the

conclusion that different trees produce male and hermaphrodite flowers ; but it has been lately ascertained, that the alleged males are only imperfect hermaphrodites. There is no calyx : the corolla is divided into six narrow, greenish-white segments ; the filaments are short, bearing heart-shaped anthers ; the germen is roundish with a simple style. The fruit is an oval drupe of a deep blue colour, supported on a red incrassated peduncle, nearly two inches in length.

QUALITIES.—The bark of this tree has a fragrant smell, and a very agreeable spicy taste. The flavour of the root is most powerful, that of the branches more pleasant. The flavour and odour reside in a volatile oil, which yielded by distillation, is the heaviest of volatile oils ; it is of a light colour, becoming darker by age, and is very pungent. The bark and pith of the young twigs abound with a pure and delicate mucilage. A very small quantity of the pith infused in a glass of water give to the whole a ropy consistence like the white of an egg. This mucilage has the uncommon quality of not being precipitated, coagulated, or rendered turbid by alcohol.

MEDICAL PROPERTIES AND USES.—The bark and wood of this tree were formerly much celebrated in the cure of syphilis, rheumatism, and dropsy. It is now, however, only prized as a warm stimulant and diaphoretic, although it still enters as an ingredient into the “ compound decoction of sarsaparilla,” formerly called the “ Lisbon diet drink,” which, useful as a sudorific in rheumatism and some cutaneous diseases, derives more efficacy from its other ingredients than from sassafras. The essential oil, mixed with water, may be given in small quantities as an antispasmodic, stimulant, and sudorific ; and the mucilage is much used in America, in dysenteric, catarrhal, and calculous affections ; also as an external application in the inflammatory stages of ophthalmia.

OFF. PREP.—Oleum Sassafras. L. E. D. Decoctum Sarsaparillæ comp. L. D. Decoctum Guaiaci. L. E. D. Aqua Calcis com. D.







*Laurus Cinnamomum*



## CXXVII

### LAURUS CINNAMOMUM.

*The Cinnamon-tree.*

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SPEC. CHAR. *Leaves* nearly opposite, ovate-oblong, 3-nerved; lateral nerves vanishing towards the end. *Panicles* repeatedly compound; petioles smooth.

Syn.—Cinamomum sive Canella Zeylanica. *Bauh. Pin.* 408.

Canella seu Cinamomum vulgare. *Bauh. Hist.* 1446.

The Cinnamon-tree of Ceylon. *Raii. Hist.* 1561.

Arbor canellifera Zeylanica, cortice acerrimo seu prestantissimo, qui cinna-  
momum officinarum. *Breyn. Prod.* 2. 17.

Cassia cinnamomea sive Cinnamomum. *Herm. Lugd. Bat.* 129. t. 655.

Cinnamomum foliis latis ovatis frugiferum. *Burm. Zeylan.* 62. t. 27.

Karua. *Rheede Malab.* 1. p. 107. t. 57.

Κιννάμωμον, *Dios.*

Laurus Cinnamomum. *Lin. Sp. Pl.* 528.; *Willd.* 2. p. 477.; *Blackw. Herb.* t. 354; *Jacq. Amer.* p. 59. t. 117; *Plenck. Icon.* 312; *Gartn. Sem.* 2. 69; *Bot. Repos.* 596; *Bot. Mag.* t. 2028; *Woodv.* 1. 80. t. 27; *Nees ab Essenb. Diss. de Cinnam.* t. 1; *Lamarck Ency.* 3. p. 441; *Persoon Syn.* 1. p. 448; *Stokes.* 2. 412.

FOREIGN.—*Le canellier*; *La canella*, Fr.; *Canella*; *Albero della canella*, It.; *Canella*; *Arbol de la canela*, Sp.; *Canella vulgar*, Port.; *Der Zimmet*, *Der Kaneel*; *Zimmetbaum*, Ger.; *Dar-cheeni*, Beng.; *Kura puttay*, Tam.; *Kurundu potto*, Cing.; *Dar Chinie*, Hind.; *Cay que*, Coch. Chin.

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LAURUS CINNAMOMUM, the bark of which yields the well known spice cinnamon, is a native of Ceylon, but it is cultivated in other parts both of the East and West Indies. Cinnamon seems to be confined to the torrid zone, or at least, we have no good authority for supposing that it is found much beyond it. Spielman says, it is found in Tartary, and many authors have asserted that it grows in China. Spielman's assertion is now supposed to be incorrect; and Sir G. Staunton tells us that, with the exception of the camphor-tree, none of the laurel genus grows in China; nor does Osbeck include it in his "Flora Sinensis." It grows abundantly on the Malabar coast; the island of Sumatra, particularly about the Bay of Tapanooly; Cochin China; Tonquin, where it is an article of Royal monopoly; the Sooloo; Borneo; Timor; the Nicobar and Phillipine islands; the island of Floris, and Tobago. It has been culti-

vated in the Brazils, the isles of Bourbon and Mauritius, the Sichelle islands, Guadaloupe, Jamaica, and the northern Circars, the island of Du Prince on the east coast of Africa. The cinnamon plant was introduced into Guiana, in the year 1772, from the Isle of France; subsequently it was transported into the Antilles. In Guiana the inhabitants cultivate it in their gardens, and round their cottages. They prepare cinnamon sufficient for domestic purposes, and transmit a small quantity to France. Prior to the year 1790, it was introduced into Cayenne by the French government at a very great expence, and recommended to be cultivated by the colonists; cinnamon has been successfully cultivated in the island of Dominica by a Mr. Buée, where the same gentleman has succeeded in propagating the clove-tree. The cinnamon-tree has long been known in this country, and was cultivated by Mr. Philip Miller in 1768. The Bishop of Winchester, many years since, raised it from seeds ripened in his own hot-house, at Farnham in Surrey. With us it must be kept constantly in the stove. In its native soil and climate, the cinnamon laurel flowers in January and February, and the fruit ripens in June, July, and August.

“The soil of the cinnamon garden in the neighbourhood of Colombo is a remarkable instance of the silicious kind. The surface of the ground in many places where the cinnamon plant flourishes, is white as snow; this is pure quartz-sand. Below the surface a few inches, where the roots penetrate, the sand is of a grey colour. A specimen of this, dried thoroughly, was found to consist of

98	5	Silicious sand,
1	0	Vegetable matter,
0	5	Water.

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It may appear surprising that the cinnamon plant should succeed best in so poor a soil; but other circumstances considered, it admits of explanation. The garden is nearly on a level with the lake of Colombo, its situation is sheltered, the climate is remarkably damp, showers are frequent, the temperature is high and uncommonly equable. These are the principal peculiarities to which the excellence of the cinnamon, and the luxuriant growth of this valuable shrub, in a soil apparently so unpromising, may be justly attributed.”\*

Captain Percival, in his *History of Ceylon*, confirms the narrative of Dr. Davy.

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\* *Davy's History of Ceylon*, p. 39.



The fullest account of the cinnamon-tree, and of the preparation of cinnamon, that we have seen in the English language, is by Henry Marshall, Esq. Staff Surgeon to the Forces in Ceylon, and the following details respecting the natural history and description of this valuable spice, is principally derived from his interesting paper, published in Thomson's *Annals of Philosophy*, vol. x. p. 241 and 346. The tree grows to the height of from 20 to 30 feet; has a slender trunk, from 12 to 18 inches in diameter, irregular, knotty, and covered externally with an ash coloured, thick, rough, scabrous bark; innumerable branches shoot from the stem and give it the appearance of the Portugal laurel. The wood is light and porous like that of the osier, and is used for fuel. Shoots spring up from the roots in great profusion, and form a bush round the stem. The inner bark is reddish. The bark of the young shoots is often beautifully speckled with dark green and light orange colours. The root and branches exude abundance of camphor. The leaves, which stand in nearly opposite pairs on short slightly channelled petioles, are from six to nine inches in length, oblong, smooth, pointed, entire, and three nerved; the lateral nerves vanishing as they approach the point. The young leaves and tender shoots are of a bright red or liver colour, with yellow veins; the former as they acquire maturity become olive, then bright green, and before they fall olive yellow; mature leaves have a strong aromatic odour, and the biting hot taste of cloves. The flowers are in axillary and terminal panicles, white, inodorous, or perhaps somewhat foetid. The petals are six, ovate, pointed, concave, and spreading; the filaments are in ternaries, shorter than the corolla, flattish, erect, the three innermost glanduliferous at the base, and the anthers are double. The fruit is an oval berry, larger than a black currant, which adheres to the receptacle, like the acorn; when ripe, the skin is bluish-brown, thickly scattered with spots; beneath the skin is a greenish pulp, which is slightly acrid, has a terebinthinate odour, and a taste resembling that of the juniper berry. This pulp incloses a nut, which contains an oily, soft, pale rose-coloured, inodorous kernel. Crows and wood-pigeons devour the berries with great

avidity ; the productive quality of the seeds remain undestroyed, and by this means the plant is disseminated to a great extent of country, and is found even in the thickest and most impassable jungles.—Fig. (*a*) represents a section of a flower magnified ; (*b*) a stamen with its gland at the base ; (*c*) the germen and style ; (*d*) the fruit.

Cinnamon is mentioned, Exod. xxx. 23, among the materials which composed the holy anointing oil ; and in Prov. vii. 17, Cant. iv. 14, Eccles. xxiv. 15, and Rom. xviii. 13, amongst the richest perfumes. Our species of cinnamon is brought from the East Indies ; but as there was no traffic with India in the days of Moses, it was probably obtained from Arabia, or some neighbouring country. We learn, also, from Pliny, that a species of it grew in Syria. “In Syria gigni cinnamum quod caryopon appellant, multum a surcolo veri cinnamomi differens.”—Nat. Hist. l. xii. c. 38.\*

Dr. Marshall, whose valuable contributions were published in the Annals of Philosophy, thinks it probable that from the earliest ages, Europe has been indebted to Ceylon for part of its consumption of this article. He thinks that it may have been exported by small vessels belonging to the island, to the Malabar coast, from thence to Sabea, on the south coast of Arabia, by the Arabs. Here the ships belonging to the merchants of Phœnicia and Egypt found large stores of the produce of India ; and by this medium the demands from all Europe were supplied. The enormous expence incurred by transporting cinnamon such a circuitous route, must have greatly enhanced its price and prevented its very general use. On some occasions, however, the quantity expended was considerable. At the funeral of Sylla, 210 burthens of spices were strewed upon the pile ; and it is probable that cinnamon formed a great part of the spices used on this occasion, the produce of the Moluccas being then but little, if at all, known to the Romans. Nero is reported to have burned a greater quantity of cinnamon and casia at the funeral of Poppœa than the countries from which it was imported yielded in one year.

In 1498 Vasco de Gama landed at Calicut. Indian commerce now took a different route, and the Portugese supplied Europe with the articles which had formerly passed through the hands of the Venetians. Eager to engross the cinnamon trade, the Portugese, early in the sixteenth century, arrived at Ceylon, and obtained leave to establish a factory, which led to the erection of the fort of Colombo. Shortly after the fort had been built, they concluded a treaty with the King of Kandy, wherein he agreed to furnish them annually with 124,000 pounds of cinnamon, in return for which they were to assist the king and his successors, both by sea and land, against all his enemies. The thriving settlements of the Portugese in the East, eventually attracted the attention of the merchants of Holland. Soon after they had

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\* Salmasius has shown from the authority of MSS, that *camacon*, or *comacon*, is here to be read for *caryopon*. In Solinum, p. 922.



gained a footing in India, they became anxious to engross the cinnamon trade, and early in the seventeenth century found means to ingratiate themselves with the King of Kandy, who invited them to aid him in expelling the Portugese from the islands. In 1612, the king engaged to deliver to the Dutch East India Company all the cinnamon he was able to collect. Peace was concluded between the Portugese and Dutch in 1644. By this treaty a moiety of the trade was ceded to the Dutch. War commenced again in 1652. Colombo surrendered to the Dutch in 1656, and Jaffna, the last place of strength of the Portugese, fell in 1658. After monopolizing the trade for many years, during which time they extirpated the trees in Malabar to enhance the value of the cinnamon of Ceylon, the Dutch found serious rivals in the Chinese, whose cinnamon is inferior to none. To check, therefore, this rivalry, and to render themselves independent of the King of Kandy, they began to cultivate the cinnamon on their own ground at Ceylon; and Dr. Thunberg, who visited Ceylon in 1778, informs us, that by the unwearied exertions of Governor Falck, exceedingly large plantations of cinnamon had been formed, and that the shoots of some of the early plantations had been already three times barked. Political altercations between the colonial government and the court of Kandy occurred about 1792, during which the peeling of cinnamon in the king's territory was greatly interrupted, and the governor declined to send an ambassador to obtain leave, as the King of Kandy required. By the year 1793, the propagation of the cinnamon plant had so far succeeded, that the governor was enabled to furnish the annual investment from the territory of the company, and in a letter to his successor, he congratulates him, that, in future, they would not be under the necessity of flattering the court of Kandy any longer. Ceylon was reduced by a British force in Feb. 1796, and in the latter end of 1797, 13,893 bales of cinnamon were sent to this country. By the treaty of Amiens, concluded in 1802, the Batavian republic ceded to his Britannic majesty all their possessions in the Island of Ceylon, which belonged before the war to the United Provinces. Soon after our countrymen became possessed of Ceylon, they became infected with the Dutch mania, and such serious alarm did they entertain that the market would be overstocked with cinnamon, the produce of the island, that the government, anxious to keep up its price, ordered many of the plantations to be rooted up. In July 1805, General Maitland assumed the government of Ceylon, and one of his first acts was to arrest the disposition of the plantations. He readily saw the propriety of encouraging and increasing the cultivation of cinnamon, and adopted means which have been followed with success. During this government, the annual investments continued gradually to increase, and many hundred acres of new ground were planted. Less dependence was now placed on the supply from the Kandian, territory, which was always uncertain and subject to many impediments. To rival the excellence of the cultivated cinnamon of Ceylon, Dr. Marshall thinks it probable that the Dutch will cultivate it in Java, or some of its dependencies, and he strongly urges the propriety of exerting the powerful means, which circumstances have placed in our power, to cultivate, collect, and export a greatly increased quantity of

this spice with the view of supplying the markets both of Europe and America ; while the trade will be rendered less profitable to our rivals, and less encouraging to them to attempt to monopolize the commerce of this important article.

“ The ground for planting cinnamon is in the first instance prepared, by cutting down the low brush-wood and young trees. The lofty trees are allowed to remain, as the cinnamon is observed to thrive better under their shade, when not too close, than when it is exposed to the direct rays of the sun. The brush-wood is collected into heaps, and burned. The planting commences when the seeds are ripe, generally during the months of June, July, and August. The workmen stretch a line upon the ground, along which they with a mammettee (hoe) turn up about a foot square of earth, at intervals of six or seven feet. The ashes of the burned shrubs and branches of trees are then spread upon the spots of friable earth ; and into each of them four or five cinnamon berries are planted with a dibble. Branches of trees are spread upon the ground, to prevent the friable earth from being scorched, and to protect the young shoots. The young shoots appear above the ground in about fifteen or twenty days. Sometimes the berries are sown in nurseries, and the shoots transplanted in the months of October and November.

“ In favourable situations the shoots attain the height of five or six feet in about six or seven years ; and a healthy bush will then afford two or three shoots fit for peeling. Every second year from four to seven shoots may be cut from a bush in a good soil. Thriving shoots of four years' growth are sometimes fit for cutting.

“ As four or five seeds are sown in one spot, and as in most seasons many of the seeds germinate, the plants grow in clusters, not unlike a hazel bush. In seasons with little rain many of the seeds fail, and a great number of the young shoots die ; so that it is frequently necessary to plant a piece of ground several times successively. A plantation of cinnamon, even on good ground, cannot be expected to make much return before eight or nine years have elapsed. The plantations from which a considerable part of the cinnamon is procured are Kaderang, Ekele, Marendahn (Colombo), and Morotta. These are styled protected plantations, to distinguish them from a number of extensive fields that were planted with cinnamon by the Dutch, and which have since been permitted to be overrun with creepers, brush-wood, &c. and many of the cinnamon plants rooted up by the natives.”

“ On an average of ten years the quantity of cinamon deposited annually in the magazine at Colombo from the jungles and abandoned plantations of our own territory, including what has been collected in the Candian country, amounts to 1184 bales ; and at Galle, during the same period, 935.

“ The peeling commences early in May, and continues until late in October. The rains which precede, and occur during the southwest monsoon, produce such a degree of succulency in the shoots as to dispose the bark and wood to part easily. The setting in of the rainy weather immediately produces a fresh crop of scarlet or crimson-coloured leaves.



“ The cinnamon harvest begins by dividing the peelers into small parties, which are placed under the directions of an inferior superintendent. When they are to peel in the plantations, each party has a certain extent of the plantation allotted to it. A few of the party cut shoots; while the remainder are employed in the wadu (or peeling shed) to remove the bark and to prepare the cinnamon. When the chaliah perceives a bush with shoots of a proper age, he strikes his ketta (which resembles a small bill-hook) obliquely into a shoot; he then gently opens the gash, to discover whether the bark separates easily from the wood. Should the bark not separate easily, the shoot or branch is not deemed fit for cutting. The chaliahs seldom trust implicitly to any external mark of the proper condition of the plant, and rarely try a shoot until the scarlet leaves have assumed a greenish hue. Some plants never acquire a state fit for decortication. Shoots of many years' growth often bear the marks of numerous annual experiments to ascertain their condition. Unhealthy, stunted plants, are always difficult of decortication; and the cinnamon procured from them is generally of an inferior quality.

“ The peelers do not cut shoots or branches whose diameter is much less than half an inch, or more than from two to three inches.

“ To remove the bark, the peeler commences by making with his kokette, or peeling knife, through the bark, a longitudinal incision, of which the length is determined by the figure of the shoot. A similar incision is made on the opposite side of the shoot, and when the branch is thick, the bark is divided in three or four places. The kokette is next introduced under the bark, which is gradually separated from the wood, and laid aside. When the bark adheres firmly to the wood, the shoot is strongly rubbed with the handle of the kokette. These sections of bark are carefully put one into another, the outer side of one section being placed in contact with the inner side of another, and are then collected into bundles, and firmly pressed or bound together.

“ In this state the bark is allowed to remain for twenty-four hours, or sometimes more; by which means a degree of fermentation is produced that facilitates the subsequent operation of removing the cuticle. The interior side of each section of bark is placed upon a convex piece of wood, and the epidermis, with the greenish pulpy matter under it, is carefully scraped off with a curved knife. During the operation the peeler sits upon the ground, and keeps the bark steady upon the piece of wood with his heel or toes. The bark dries, contracts, and gradually assumes the appearance of a quill or pipe. In a few hours from the time the cuticle is removed, the peeler commences to put the smaller tubes into the larger, and introduces also the small pieces. By this means a congeries of quills is formed into a pipe, which measures about forty inches long. The cinnamon is suspended in the wadu upon open platforms for the first day. The second day it is placed in the sun, on wicker shelves, to dry. When sufficiently dry, it is collected into bundles of about thirty pounds weight each, and in this state deposited monthly in the government magazines at Colombo or Galle.

“ When newly prepared, cinnamon has a most delicious odour: this

odoriferous quality becomes gradually fainter. Cinnamon is at first a light-orange colour, which becomes a shade darker by exposure to the air. The bark of old trees acquires a reddish-brown colour.

“ Shortly after the cinnamon is deposited in the store-houses, the inspection of it commences. The East India Company employ an inspector and two assistants to superintend the sorting and baling of the cinnamon. The manipulation is performed by natives. Each bundle is placed on a table or large bench; the bundle is untied, and the cinnamon examined quill by quill. It is divided into a first, a second, and a third, or rejected sort. The first and second sorts are alone deemed of a quality fit to form the Company's investment. The sorting of cinnamon consists chiefly in detecting or separating what is coarse, and otherwise of a bad quality, including the impositions of the peelers. This is chiefly performed by inspection. Habit soon enables the people employed to discover by a single glance of the eye what is considered defective. Tasting is very rarely had recourse to.

“ The bark of the large shoots, or thick branches of trees, produces coarse cinnamon, which is generally rejected by the sorters. This cinnamon is thick, and has a reddish-brown colour, rough surface, loose texture, and is coarse-grained. It breaks short, shivery, and crumbling. When chewed it is disagreeably pungent, feels gritty, ligneous, and sandy, in the mouth.

“ The peelers occasionally scrape off the external pellicle of this quality of cinnamon. This operation thins the cinnamon and improves the colour, but leaves it with a coarse, rough surface. This quality of cinnamon is always rejected.

“ Cinnamon prepared from the bark of very young and succulent shoots is rejected. It is light straw-coloured, thin, and almost without flavour or taste; and what little aroma it possesses is very evanescent.

“ Mildewed or half-rotten and smoky cinnamon is rejected. When the peelers are overtaken with rain at a distance from sheds, the bark they have previously collected ferments, becomes decayed, and inodorous. In such situations they frequently retire to caves, or very confined huts, where they kindle fires, to procure warmth and to dress their food. The smoke arising from these fires often greatly injures the bark, and renders it unfit to be manufactured into good cinnamon. To increase the weight, the peelers sometimes stuff the quills of cinnamon with sand or clayey earth, thick ill-prepared pieces of bark, &c. &c. When these impositions are suspected, the quills are undone, often broken, and the foreign mixtures removed.

“ This is one of the many causes which prevents the cinnamon from being in quills of nearly equal length. Cinnamon produced beyond the river Keymel on the north, and the Wallawey on the south, is generally condemned. It is light-coloured, greatly deficient in aromatic flavour, astringent, bitter, and has sometimes a taste similar to the rind of a lemon. Even between these limits the cinnamon produced differs greatly in quality. Differences of soil, and exposure, are very evident causes of a difference in the quality of cinnamon. Shoots exposed to the sun are more acrid and spicy than the bark of those which grow under a shade. A marshy soil rarely affords good



cinnamon. It has often a pale yellow shade, approaching to the colour of turmeric. It is loose, friable, and gritty, and its texture coarse-grained. It possesses little of the spicy taste of cinnamon. Very often, however, the cause of the inequality of this spice is not apparent; the bark of different shoots of the same bush have often very different degrees of spiciness.

“That which is considered in Ceylon as of the best quality is of a light yellow colour, approaching nearly to that of Venetian gold; thin, smooth, shining; admits of a considerable degree of pressure and bending before it breaks; fracture splintery; has an agreeable, warm, aromatic flavour, with a mild degree of sweetness. When chewed, the pieces become soft, and seem to melt in the mouth.

“The first and second sorts are weighed, and put up into bundles, each weighing  $92\frac{1}{2}$  lb. English. Each parcel or bale is firmly bound round with ropes, and then put into double gunnies.

“The outside of the bale is marked with the number of the quality of the cinnamon, and the initial letter of the name of the protected plantation from whence it is procured. The bales of cinnamon which are procured in the neglected plantations, the woods of our own territory, or in the Candian country, are marked A. G. (Abandoned Gardens.) The Company export their cinnamon from Colombo or Galle, and the interstices between the bales are filled with black pepper.”

“On some occasions the Ceylon government has directed oil to be extracted from the cinnamon, whose quality did not permit it to form part of the Company's investment. The process is simple: the bark is grossly powdered, and macerated for two days in sea-water, when both are put into the still. A light oil comes over with the water, and swims upon its surface, and a heavy oil, which sinks to the bottom of the receiver. The light oil separates from the water in a few hours; but the heavy oil continues to precipitate for ten or twelve days. The heavy oil, which separates first, is about the same colour as the light oil; but the portion which separates last has a browner shade than the supernatant oil. In future distillations the saturated cinnamon-water is advantageously used, added to sea-water, to macerate the cinnamon. Eighty pounds of newly-prepared cinnamon yield about two ounces and a half of oil, which floats upon the water, and five ounces and a half of heavy oil. The same quantity of cinnamon, if kept in store for several years, yields about two ounces of light oil, and five ounces of heavy oil.”

“The word casia is by modern authors used in a variety of senses; but as they do not always define it, or explain the specific nature of the substance they intend to describe, it is often difficult to know in what sense they have adopted the term, or to comprehend the nature of the article concerning which they have been writing.

“This makes the subject extremely embarrassing. It is, however, very generally used in one or other of the three following meanings. 1. To denote the prepared bark of the *laurus casia*. 2. To specify the cinnamon procured from thick shoots, or large branches of the cinnamon-tree, employing it as synonymous with the appellation coarse cinnamon. 3. To denominate the produce of the *laurus cinnamomum*

found in various countries, and to distinguish it from the cinnamon produced in Ceylon.

“ With regard to the first specification, it is sufficient to mention that *laurus casia*, dawul kurundu, has been already described, and the distinction between it and the *laurus cinnamomum* pointed out. It is never decorticated. As to the second, it is well known that the rejected cinnamon, or third sort of that prepared in Ceylon, has been imported into England, and sold under the denomination of casia.

“ The third specification seems to be founded in a supposition that the *laurus cinnamomum* found out of Ceylon is not equal to that which is produced in this island.”

The true cinnamon of commerce, according to Mr. Marshall, is the produce of young shoots of the cinnamon-tree (*Laurus Cinnamomum*); and casia is the prepared bark of the *old branches of the same kind of tree*. Casia is harder, and more woody than cinnamon. The ancients made use of this kind of bark; but we at present reject it.\*

The *casia bud* of commerce is the fleshy hexangular receptacle of the seed of the *L. Cinnamomum*. When gathered young the receptacle completely envelops the embryo seed, which progressively protrudes, but is continually embraced by the receptacle. The buds have the appearance of nails, with roundish heads of various sizes. If carefully dried, the receptacle becomes nearly black, and the point of the berry light brown. The seeds contract by drying, and often fall out; the receptacle is then cup-shaped. When kept long they have a dirty brown colour, and possess very little of the flavour of cinnamon. By distillation they yield an essential oil not inferior to that of cinnamon bark.

QUALITIES AND CHEMICAL PROPERTIES.—Cinnamon bark has a reddish brown colour, and consists of long rolled pieces which splinter when broken. It has a pleasant aromatic smell,

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\* The following is Mr. Marshall's description of the *Laurus cassia*, of Lin., or Bastard Cinnamon-tree, which abounds in many parts of Ceylon, and is called *dawul kurundu* by the Cingalese. “ The trunk is branchy and crooked; leaves ovate-lanceolate, entire, from four to six inches long, and from one to two inches broad; three nerved; the lateral nerves terminate before they join the leaf, and join the middle one; above the petiole smooth, alternate; upper surface dusky green; under surface pale grey; petiole half cylindrical; flat above; flowers inodorous; whitish, verticillated, sessile; calyx common 4-leaved; leaves roundish, concave; contains five distinct flowers with short peduncles; corolla 6-petalled, ovate-concave, nearly equal; filaments nine, shorter than the corolla; style short, stigma obtuse; berry black, round, and about the size of a large currant. The bark of the root is extremely bitter; the leaves of the bark of the trunk and branches, are bitter, and have, in a very slight degree, the taste and odour of myrrh. This is the *canella de matto* of the Portuguese, the wild cannel of the Dutch, and the *laurus myrrha* of Louriero.” It is figured in Nees ab Essenbeck's “*Dissertatio De Cinnamomo*,” t. 3, published at Bonn in 1823, and in the *Botanical Magazine*, t. 1636.



and a pungent but agreeable taste. Its properties are entirely owing to its volatile oil. This oil has a whitish yellow colour, and an extremely pungent taste and smell. It may be separated by infusing the bark in alcohol, and then separating the alcohol from the oil by distillation. When water is distilled off this bark it comes over milky, from the accompanying oil, which it retains with great obstinacy; very little separating till the mixture has stood a very considerable time.

**MEDICAL PROPERTIES AND USES.**—Cinnamon bark is one of the most grateful aromatic stomachics that we possess, and is reckoned to be stimulant, stomachic, astringent, and tonic. It is principally employed, however, as an adjunct to other remedies, to prevent their griping effect, or to cover their nauseous taste. The oil being a powerful stimulant is sometimes employed to allay spasmodic affections of the stomach and bowels, hiccup, and nausea. It is also applied sometimes to relieve the pain of decayed teeth.

**OFF. PREP.**—Aqua Cinnamomi. L. E. D.

Spiritus Cinnamomi. L. E. D.

Tinctura Cinnamomi. comp. L. E. D.

Pulvis Cinnamomi, comp. L. E.

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## **LAURUS CAMPHORA.**—*Japanese Camphor-tree.*

**SPEC. CHAR.** *Leaves* elliptical, pointed; 3-ribbed far above the elongated base. *Clusters* axillary, somewhat compound, shorter than the leaves.

*Syn.*—Camphora officinarum. *Bauh. Pin.* 500; *Blackw. t.* 347.

Arbor camphorifera japonica. *Commel. Hort. Amst. v.* 1. 185. *t.* 95.

Laurus Camphora. *Lin. Sp. Pl.* 521; *Willd. ii. p.* 478; *Jacq. Coll. v.* 4. 221. *t.* 3. *f.* 2; *Kæmpf. Amdn.* 770. *t.* 771; *Woodv. t.* 155.

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THE Japanese camphor is obtained by distillation from this tree, but the greater part of what is brought to Europe from Sumatra and Borneo is now fully ascertained to be the produce of the

Dryobalonops *Camphora*, a tree belonging to a distinct genus from the laurel. The camphor laurel is a native of Japan, and is sometimes to be seen flowering in our stoves. It is a large tree with ascending branches. The leaves are ovate-lanceolate, entire, smooth, ribbed, of a pale yellowish green colour on the upper surface, on the under glaucous, and stand on long footstalks. The flowers are small, white, on long, naked, lateral peduncles. The corolla is composed of six ovate, concave unequal petals, enclosing a tuberculated bristled nectary, which surround the germen. The filaments are shorter than the corolla with round anthers. The germen is roundish with a simple style. The fruit is a small ovate berry, of a dusky brown or reddish colour resembling that of the cinnamon.

For an account of the *Chemical Properties* and *Uses* of Camphor, see the article DRYOBALONOPS.







*Rheum palmatum*



## RHEUM PALMATUM.

*Palmated Rhubarb.*


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*Class IX. ENNEANDRIA.—Order III. TRIGYNIA.*

*Nat. Ord. OLERACEÆ, Lin. POLYGONEÆ, Juss.*

GEN. CHAR. *Calyx* 0. *Corolla* 6-cleft, persistent.

*Seed* 1, three-sided.

SPEC. CHAR. *Leaves* palmate, pointed, roughish; the sinus dilated at the base. *Stalks* obsoletely furrowed above, and rounded at the edge.

*Syn.*—*Rheum palmatum*, *Lin. Sp. Pl.* 531; *Willd.* II. 488.

*Rhabarbarum*, *Bauh. Hist.* ii. 989. *Lob. Ic.* i. 289.

*Rhabarbarum et ponticum genuinum officinarum*, *Park. Theatr.* 156.

FOREIGN.—*Rhubarb*, Fr.; *Rhabarbaro*, Ital.; *Ruibarbaro*, Span.; *Rhabarber*, *Aechte Rhabarber*, Ger.; *Ta Hoam*, Chin.

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THE palmated rhubarb is a native of Russia, and some parts of Asia, whence the dried root is imported into this country for medicinal purposes. It is sufficiently discriminated by the specific characters, and is besides so well known, as to render a minute description unnecessary. The root is large, thick, oval, branched, brown externally, and of a deep yellow colour within. The stem is erect, round, hollow, jointed, branched at top, and rises to the height of six or eight feet. The lower leaves are very large, palmated, acuminate, somewhat rugged, and stand upon long-channelled smooth petioles, grooved above and rounded at the edge with ferruginous dots; those of the stem are placed close to the stalk, and become gradually smaller towards the summit. The flowers, which appear in May and June, are small, white, numerous, surrounding the stem, and collected at the extremity of the branches, forming a sort of spike. The corolla is divided into six obtuse segments; the filaments are nine, the length of the corolla, and supporting oblong anthers; the style is short, with three reflected stigmas. The germen becomes a triangular seed, acute, with membranaceous margins. Fig. (*a*) represents a flower somewhat magnified; (*b*) a seed.

The Raphontic Rhubarb, *R. Raphonticum*, was first cultivated by Mr. John Parkinson, in 1629, the seeds of which were sent to him by Dr. Lister, one of the king's physicians. On making trial of the roots, they were found very inferior in power to those of the Rhubarb of Commerce. In 1759, Dr. Boerhaave procured the seeds of *R. undulatum*, which is a native of China and Siberia. It was cultivated by Miller, but not very generally received as the true Rhubarb; which induced Boerhaave to procure from a merchant the seeds of the plants which produced the roots that he annually sold, and were admitted at St. Petersburg to be genuine Rhubarb. These seeds were soon propagated, and were discovered to produce two distinct species, namely, the *Rheum undulatum*, referred to above, and the *R. palmatum*, which has for some time been supposed to be the true root, not only by botanists, but by the acknowledged authorities in the Pharmacopœias of London and Edinburgh; though the Dublin college retain the *R. undulatum*. The seeds of *R. palmatum*, were first introduced into Britain in 1762, by Dr. Mounsey, who sent them from Russia: both Prof. Martyn and Dr. Hope cultivated them at the same time, the former at Cambridge, and the latter at Edinburgh. It appears, however, that we are indebted to several species of *Rheum* for our valuable medicine, as Georgi relates that a Cossack pointed out the *R. undulatum* to him as the true Rhubarb; while Prof. Pallas states that in Bukharia, the *palmated* sort seems to be unknown; and that as far as he could collect from description, the species they consider as the true one is the *compactum*; the seeds of which Mr. Miller informs us, were sent to him from St. Petersburg, as the true Tartarian Rhubarb. We have been favoured by Mr. David Don, Librarian of the Linnæan Society, with a copy of his remarks on the "Rhubarb of Commerce." The following is an extract:

"Mr. Sievers, an enterprising assistant of Professor Pallas, and well known by his interesting Letters on Siberia, published in the *Nordische Beyträge*, was sent by the Empress Catharine II. purposely to try to obtain the true Rhubarb plant from its native country; and although, after travelling for seven years in the countries adjacent to that in which it is found, he was unable to effect the object of his mission, yet he obtained sufficient information to convince him that the



plant was then unknown to botanists. But it was reserved for Dr. Wallich, the zealous superintendent of the Calcutta Botanic Garden, to set this long agitated question at rest, by the transmission of seeds and dried specimens of the true Rhubarb plant to Europe. Last spring, Mr. Colebrooke received a quantity of the ripe seeds from Dr. Wallich, and presented a portion of them to Mr. Lambert, who has been so fortunate as to raise a number of plants of this valuable vegetable. The seeds were sown in pots, and, by the aid of artificial heat, soon vegetated. The young seedlings were transplanted into several pots filled with rich earth, and the pots were gradually changed as the plants increased in size. By this treatment, as might well be imagined, the young plants grew vigorously, and, at the end of autumn, the leaves were from fifteen inches to a foot in breadth, and the footstalks nine inches long, with half an inch in diameter. The plant, on examination, proved to be identical with my *Rheum australe*,\* from Gosaingsthan in the Himalaya Alps. I find Dr. Wallich calls it *Rheum Emodi*, a name which I should certainly have adopted, had I been aware of it before the publication of my work. The whole plant is thickly beset with numerous, small, bristle-shaped, cartilaginous points, which give it a rough feel. The leaves are of a dull green, and the footstalks are red and deeply furrowed. The native samples I have seen appear to be smaller in all their parts, and the leaves, although flowering specimens, frequently not more than three or four inches broad; the footstalks four inches long, and slender, and the flowering stem not above two feet high. It is curious to observe how well this description accords with what Sievers has given us. The *Rheum australe* appears to be peculiar to the great table lands of central Asia, between the latitudes of 31° and 40°, where it is found to flourish at an elevation of 11,000 feet above the level of the sea; and there is little doubt, therefore, of its proving perfectly hardy in our own country. Large quantities of the roots are annually collected for exportation in the Chinese provinces within the lofty range of the Himalaya. The best is that which comes by way of Russia, as greater care is taken in the selection; and on its arrival at Kiachta, within the Russian frontiers, the roots are all carefully examined, and the damaged pieces destroyed. This is the fine rhubarb of the shops, called improperly Turkey Rhubarb."

Mr. Don has kindly promised to give us a specimen, when the plant flowers, which we intend to have figured.

CULTURE.—Since the introduction of *R. palmatum*, it has been largely cultivated in this country; and we are informed by the best authority, that the London market is principally supplied from Banbury. Fine specimens are worth about six shillings per pound, and resemble Turkey Rhubarb in their appear-

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\* *R. australe*, foliis subrotundo-cordatis obtusis planis subtus margineque scabris sinu baseos dilatatis, petiolis sulcatis teretiusculis cum ramis pedunculisque papilloso-scabris, perianthii foliolis ovali-oblongis apice crenulatis.—Don, *Prod. Fl. Nepal*, p. 75.

ance more than they do East India; although it is for the latter that they are principally substituted. The article sold at the herb shops under the designation, "English Rhubarb," is the produce of the *R. undulatum*; the stalks of which are used for tarts. It may be bought for ninepence per pound, and from its want of power has caused undeserved reproach to be cast on the proper cultivated sort.

Twenty pounds of English Rhubarb,

Seven pounds of East Indian,

Three pounds of Turkey,

ground together, are the proportions employed by one of the most fashionable druggists at the west end of the Town, to form a fine looking article, denominated by them, and sold as, "Fine Turkey Rhubarb." The Society for the Encouragement of Arts, Manufactures, and Commerce, exerted itself for many years to promote the culture of Rhubarb in this country; and medals and other rewards were voted to Sir A. Dick, Mr. Jarman, Mr. R. Davis, Jun. of Minehead, Mr. Ball, of Williton, Mr. Jones, late of Fish-Street Hill, &c.

Mr. Davis recommends the seeds to be sown in a very gentle hot-bed, in March, and when the roots are about the size of a crow's quill, they should be drawn up carefully to preserve the taproot, and planted in a fine rich earth in a deep soil; if the weather should prove dry, they must be watered. When the plants are once in a growing state, all farther care and trouble are at an end, but that of keeping them free from weeds. The distance of the plants should be eight feet; and *as they disappear above seven months in the year*, the ground may be usefully employed in many articles of gardening, from the middle of August to the beginning of April.

The seeds, however, do not require a hot-bed to make them vegetate, but if sown in the natural ground during the spring, when the weather is open, soon come up and thrive fast. The plant delights most in a rich, light, deep soil, and warm exposure, but will thrive almost in any situation.

Mr. Jones's method :

"Sow the seeds in March and April, or during the autumn, in August and September; the former to be transplanted in autumn, the latter in spring. Instead of placing the seedling plants where they are to remain, as is usually recommended, beds should be prepared resembling those which are made for asparagus, of fine mould, from twelve to eighteen inches deep. When the young plants are four or



five inches high, and have thrown out as many leaves, transplant them upon those beds at eight inches asunder; selecting, first, the largest, carefully drawing them out, so as to destroy or even disturb the fibres as little as possible. Watering the bed previously to the removal, will greatly facilitate the operation.

“In the culture of rhubarb, the whole difficulty consists in bringing the plants through their first season; if the weather be hot and sultry they must be shaded, and at all events must be continually watered. For transplanting, a wet or cloudy day should be preferred; and if the weather should continue for two or three days successively, not more than four or five in a hundred will probably be lost. In a month the roots will have made fresh shoots, and new leaves will have succeeded the former, which commonly, notwithstanding all our care, will wither away. The plants may now remain till the ensuing spring, or if the summer be favourable, and the land intended for the plantation be well trenched three feet deep, it may be completed without delay. It is a good way to sow the ground with carrots; the surface by this means being preserved from weeds, and rendered finer by repeated hoeings, and the bottom kept light and open. At different periods during the summer, when the plants are of a proper size, and the weather is cloudy or showery, with a transplanter or circular spade, remove them with a ball of earth adhering, at the prescribed distances, into the midst of the carrots, destroying such as might obstruct the growth of the rhubarb; and if the weather should prove unusually hot, the foliage of the carrots will preserve the young plants from the sun till they have acquired a sufficient growth; after this it remains only to keep the plantation clear, and the trenches open.”\*

“In the choice of situation the aspect is not very material, provided it be not shaded too much on the south or west. The indispensable points are the depth and quality of the soil, which should be light, loamy, and rich, but not too much so, lest the roots should be too fibrous: it can scarcely be too dry, for more evil is to be expected from a superabundancy of moisture, than from any actual want of it. A declivity is very eligible for the plantation. When a plantation does not possess this material advantage, narrow beds and deepened trenches are among the artificial means that should be adopted; but most situations will require some care to prevent the ill effects of water remaining on the crowns of the plants: therefore, when the seed-stalks are cut off, which ought always to be done on the withering of the radical leaves; they should be covered with mould in the form of a hillock. This will answer two good purposes, that of throwing off the rain, and keeping open the trenches, by taking the earth from them.”

If the roots be covered with litter, or the earth be drawn over them in winter, they will rise stronger the following spring; and some recommend the seeds to be sown where the plants are to remain, and when they appear, the ground should be kept free from weeds. When thinned out, the distance of the plants should be eight feet.

Sir W. Fordyce, who sowed the seeds at first upon a hot-bed, on the whole found that they succeeded best when sown in the open ground, in an east or south-east exposure, during the last half of March, or in April, or even so late as the end of May if the spring proved cold or dry. The plants may then be transplanted during the whole course of the summer.

If the ground be stirred about a seeding plant, the seeds falling will produce plenty of young plants, both in the autumn and the following spring; these may be transplanted about midsummer.

They blossom the third year, and till then the medicinal qualities of the roots scarcely come into existence.

The Chinese get up their rhubarb in winter. Pallas says that the Tartars take up theirs in April and May; but in Bell's account, this is said to be done in autumn. Forster, in his *History of Voyages to the North*, affirms, that the roots are dug up in winter, because they then contain the entire juice and virtue of the plant; those that are taken up in summer, being of a light spongy texture, and unfit for use. We should think, that in this country, February would be the month most fit for digging up the roots. The greatest difficulty appears to be in drying, and curing them.

In Tartary, being thoroughly cleaned, and the smaller branches cut off, they are cut transversely into pieces of a moderate size; these are placed on long tables or boards, and turned three or four times a day, that the yellow viscid juice may incorporate with the substance of the root. If this juice be suffered to run out, the roots become light and unserviceable: and if they be not cut within five or six days after they are dug up, they become soft, and decay rapidly. Four or five days after they are cut, holes are made through them, and they are hung up to dry, exposed to the air and wind, but sheltered from the sun. Thus, in about two months, the roots are completely dried. The loss of weight is very considerable; seven loads of green roots yielding only one small horse-load of perfectly dry rhubarb.

The Chinese method is somewhat different. They skin the root, cut it into slices, and dry them on stone slabs, under which large fires are kindled; but, as this process is not sufficient to



dry them perfectly, they make a hole through them and suspend them on strings, some say exposed to the sun; while Kochin asserts, that they are hung in the shade. Were we to cultivate rhubarb in this country, we should take the same preliminary steps that are practised by the Tartars, and afterwards dry the pieces in a malt-kiln, where they might be hung on strings without interfering with the barley.

From experiments made at the Bath hospital, it appears that the purgative qualities of English are scarcely so strong as Turkey or East India rhubarb, but the difference is not great. And from a great number of trials made by Dr. Parry, it appears that one of the specimens of English rhubarb was fully equal in its effects to the Turkey.

Upon the whole, if English rhubarb should be allowed to be inferior to the foreign, which is perhaps doubtful, it appears probable, that this inferiority is owing only to such circumstances as attention and industry may obviate; and that this might be done in a great measure by attending to the age of the plant when taken up; to the root being cut transversely, rasped on the outside, having the sappy parts cut out, and being quickly dried. The best specimens of the drug have generally been allowed to grow seven years; the roots are then very large, weighing from thirty to fifty pounds.

When it is considered that the duty on East India rhubarb is 2s. 6d. per pound, and that about £200,000 is paid annually for what is imported into this country, the subject is one of considerable importance, and has arrested the attention of Mr. Salisbury of the Fulham Road; whose zeal for the improvement of domestic economy, particularly as applicable to Ireland, is well known to the philanthropic part of the community. He has favoured us with a sample of the root cultivated by himself, and to him we are likewise indebted for the following remarks:

“Rhubarb grows well in light loamy soils: it blooms at the age of three years, and ripens abundance of seeds by which the plants are raised. The propagation requiring particular care and attention, should be considered more the work of a nurseryman than that of the farmer; and if a sale were found for a quantity, they could be raised fit for planting out at five shillings per hundred.”

“The land intended for this crop should be trenched as deep as it will bear, without throwing up a bad under soil, and the plants set at exact squares three feet apart; so that 4,840 will just plant an English acre. During the summer season the land must be frequently hoed; and at the autumn or winter it should be every season dug, and particular care paid to throw the mould up to the roots. By observing this plan during the winter, and raking it off in spring, the growth will be much encouraged. Unless it is necessary for the purpose of saving seeds none of the plants should be allowed to throw up blooming stems, which on their appearance should be cut down: otherwise the plants are weakened at the root.

“The crop must stand seven years on the land, and, in fact, experience proves that the roots will keep increasing in size till a much older period, so that it might be taken up after that period, at such time as best suited the market, or the proprietor’s pleasure.

“The quantity in weight of the roots, at the end of seven years, will consequently vary according to circumstances; but from an experiment made this present autumn, the writer is warranted in the supposition that from one acre *five thousand pounds weight* may at least be expected of *prime rhubarb*, besides a quantity that would find sale for inferior purposes to the druggists—as *extract, tincture, &c.*

“The labour attending this crop, from the distance the plants are apart, is very trifling, and would require less expense than in crops where the plants stood thicker, as in *madder, &c.*, where the *hoeing* and *weeding* is more tedious. The expense would be, in Ireland, as follows:

First Year.	£.	s.	d.
Rent of one acre, or 160 perches .....	2	0	0
Five thousand plants, at 50s.....	12	10	0
Trenching, at 5 <i>d.</i> per rood .....	3	6	8
Planting.....	1	0	0
Hoeing, three times, at 7 <i>s.</i> per acre each time ..	1	1	0

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£19 17 8

Second Year.

	£	s.	d.
Rent.....	2	0	0
Digging among the plants, at 2 <i>d.</i> per rood .....	1	6	8
Hoeing, three times .....	1	1	0
Ditto for five following years .....	4	7	8
	21	18	4

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£46 3 8

Trenching land to take up the crop, at 1 <i>s.</i> per perch .....	8	0	0
Preparing and drying the crop, at 2 <i>d.</i> per lb. 5,000 lbs. ....	20	16	8
Tythe, seven years, at 8 <i>s.</i> ....	2	16	0

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Total £77 16 4

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We have been almost wholly indebted for our materials on the cultivation of rhubarb, to an able article in Miller's Gardener's Dictionary, which was written by the late Professor Martyn; and those who are desirous to glean more information, may consult that work with pleasure and advantage.

QUALITIES AND CHEMICAL PROPERTIES.—The best rhubarb, termed Turkey, or Russian, is in small pieces, with a hole in the middle, made in the recent root for the purpose of drying it. The colour is a lively yellow, streaked white and red. Its texture is dense, and its powder a bright yellow. In selecting rhubarb, the pieces should be broken, and those which are of a bad colour, or exhibit appearances of decay, should be rejected. The smell of rhubarb is somewhat aromatic, and it has a nauseous, bitter, slightly astringent taste.

“ Another kind, imported from China, is known by the name of East Indian rhubarb: it is in larger masses, more compact and hard, heavier and less friable, and less fine in the grain than the other, and having less of an aromatic flavour.”\* It is said by Dr. Kelman, to be the produce of the same plant, but that it is prepared with less care. Water digested upon rhubarb dissolves about 50 *per cent*. The infusion is yellow-brown, and contains mucilaginous, extractive, and astringent matter. Alcoholic tincture of rhubarb has a deep yellow colour, and a remarkably penetrating nauseous taste and odour. It is generally stated, that rhubarb contains oxalate of lime, but Mr. Brand has never succeeded in obtaining oxalic acid from it, though he has procured an uncrystallizable acid, having the characters of the malic acid. The following substances were obtained from 100 parts of the finest Turkey rhubarb:—

Water .....	8 . 2
Gum .....	31 . 0
Resin .....	10 . 0
Extract, tan, and Gallic acid.....	26 . 0
Phosphate of lime .....	2 . 0
Malate of lime.....	6 . 5
Woody fibre .....	16 . 3
	<hr/>
	100 . 0
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\* Murray's Materia Medica, vol. i. p. 361.

**MEDICAL PROPERTIES AND USES.** — The virtues of Rhubarb are so well known, that it appears almost a work of supererogation to mention them. As a cathartic, from one scruple to half a drachm is required for a dose: but a few grains are sufficient to excite the action of the stomach and intestines, and are often employed, when it is desirable that the food should be assisted quickly to pass from the former, or when we merely wish to increase the natural action of the latter. In these small doses it will be found useful in hypochondriasis, jaundice, and in symptoms of dyspepsia, as it obviates costiveness, and by its bitter principle has a tendency to restore the tone of the digestive organs. By some it is considered to have an astringent effect, after its operation as a purgative has ceased: it is therefore recommended to be exhibited in diarrhoea; and is especially adapted for the bowel diseases of infants. It may be advantageously combined with sulphate of potash as a purgative for children, or with any other of the neutral salts; and to cover its nauseous flavour, it is usual to prescribe with it, a few grains of powdered cinnamon, or some mastic water. It is also an excellent adjunct to calomel. Combined with the extract of camomile, or gentian, a useful tonic pill is formed, to which may be added preparations of soda, when antacids are required. The tincture of rhubarb is an excellent stomachic, given with some bitter infusion, but the vulgar practice of taking it for pains in the bowels, too often increases the inflammation when it exists. Rhubarb speedily passes off by the kidneys, and may frequently be detected in the urine, ten minutes after taking it, by the aid of an alkali. Sir E. Home has advised the powder to be applied to ulcers, which require a slight stimulus, but the practice is seldom adopted. The foot-stalks of the *R. undulatum* are used for culinary purposes; and Dr. Todd Thompson has recommended the palmated species.\* But a friend of ours, whose palate is in good order, and whose botanical knowledge is great, has adopted his advice, without becoming a convert. He states, that the astringency was so

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\* Gardener's Mag. Oct. 1826, p. 396.



powerful, that neither he nor his family could eat it ; which proves the truth of the old adage : “ De gustibus non est disputandum.”

OFF. PREP.—Infusum Rhei, *L. E.*

Vinum Rhei, *E.*

Tinctura Rhei, *L. E. D.*

Tinctura Rhei composita, *L.*

Tinctura Rhei et Aloes, *E.*

Tinctura Rhei et Gentianæ, *E.*

Pilulæ Rhei compositæ, *E.*

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The following Table, by Dr. Todd Thompson, shows the effects of re-agents on the aqueous infusion of the two varieties of rhubarb ; and this gentleman thinks, with M. de Lassaignes, that the acid contained in rhubarb, and termed *rheumic* by Mr. John Henderson, is the oxalic acid.

TABLE I. Precipitates formed by Acids, Alkalies, and Neutral Salts.

Variety of Rhubarb.	Sulphuric Acid.	Nitric Acid.	Muriatic Acid.	Oxymuriatic Acid.	Solution of Potass.	Solution of Subcarbonate of Potass.	Lime water.	Muriate of Barytes.	Silicated Potass.
Russian.	copious, greenish yellow.	scanty, flocculent, pale yellow.	scanty, very slowly formed, yellow.	slowly formed, pale olive.	none, but strikes a deep lake colour.	none, but strikes reddish brown.	scanty, slowly formed, brown.	canty, olive green.	none, but strikes a deep brown.
Chinese.	more copious, brownish yellow.	less scanty, pale yellow.	scanty, quickly formed, brownish yellow.	slowly formed, orange yellow.	none, a deeper lake.	none, but renders it turbid, and deep reddish brown.	copious, quickly formed, brown.	less scanty, orange yellow.	none, but strikes a deep brown.

TABLE II. Precipitates formed by Solutions of Metallic Salts.

Variety of Rhubarb.	Solution of Oxysulphate of Iron.	Solution of Nitrate of Silver.	Solution of Nitrat. of Mercury.	Solution of Nitrate of Lead.	Solution of Muriate of Mercury.	Solution of Acetate of Lead.	Solution of Tartarized Antimony.
Russian.	copious, nearly black.	scanty, pale greenish yellow.	copious, olive yellow.	scanty, slowly formed, yellow.	scanty, slowly formed, pale olive.	scanty, greenish yellow.	scanty, slowly formed, whitish.
Chinese.	copious, deep olive-green.	copious, orange-yellow.	copious, heavy, bright yellow.	scanty, slowly formed, deeper yellow.	copious, quickly formed, heavy yellow.	copious, yellow.	scanty, still more slowly formed.







*Rheum undulatum.*

W. Clarke del.

W. D. A. sc.

London Published for the Authors. Sep. 1836.



## RHEUM UNDULATUM.

*Waved-leaved, or Chinese Rhubarb.*

SPEC. CHAR. *Leaves* villous, wavy; the sinus dilated at the base. *Petioles* flat above, with an acute edge.

Syn.—*Rheum sinense*, *Amm. Herb.* 206.

*Acetosa montana.* *Messerschm. in Amm. Ruth.* 226.

*Rheum Rhabarbarum.* *Lin. Syst. Veg.* 385; *Pallas It.* 2. 559.

*Rheum undulatum.* *Lin. Sp. Pl.* 531; *Amœn. Acad.* 3. p. 212. t. 4; *Willd.* 2. 489; *Hort. Kew.* 2. 430; *Plenck. Ic.* t. 321.

FOREIGN.—*Wellenblättriger Rhabarber*, Ger.; *Hai Houng*, Chin.

THIS plant is a native of China and Tartary. Like the *Rheum palmatum*, already fully described (Art. XXV.) it yields the roots which in our shops are known under the names of Chinese and Turkey rhubarb; although other species of *Rheum*, especially *compactum*, possess similar medicinal properties. The roots of this, as well as the other species, has been cultivated with success in this country, with a view of supplying the London market; but such is the prejudice in favour of the foreign article, that these attempts have generally failed.

The root is composed of numerous thick fibres, running farther into the ground than the *palmatum*, and of a deep yellow colour. The flower stem is erect, three or four feet in height, and of a pale brownish colour. The leaves are numerous, large, oblong, somewhat tapering, villose above, much waved at their edges, and strongly veined beneath; they are supported on moderately thick footstalks, channelled on their under side, and plain on their upper. The flowers are white, in loose panicles or bunches, which appear in May, and are succeeded by trian-

gular seeds of a rusty brown colour, like those of *R. palmatum*, which ripen earlier in the season. Fig. (a) represents a flower magnified; (b) the pistil; (c) seed.

QUALITIES AND USES.—The same as those of *Rheum palmatum*. Dr. Pulteney remarks, that if these two species are planted near each other, they produce a hybrid variety, more excellent in kind than the parent plants.

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### RHEUM COMPACTUM.—*Thick-leaved Rhubarb.*

SPEC. CHAR. *Leaves* somewhat lobed, very obtuse, shining, sharp-toothed, smooth.

Syn.—*Rheum foliis cordatis glabris marginibus sinuatis, &c.*; *Mill. Ic.* 2. t. 218.

*Rheum compactum.* *Willd. Sp. Pl.* 2. 489. *Ait. Kew.* 2. 431.

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This species of *Rheum* is a native of Tartary, and is frequently substituted for the true rhubarb. The root is large, much branched, and internally yellow. The stems are five or six feet high, of a pale green colour, branched at the upper part, and having at each joint one sessile leaf of the same shape with those of the root, but smaller. The radical leaves are large, smooth, heart-shaped, broad at the base, coriaceous and compact, rather waved, petioled, and having a sharp acid flavour. The flowers, which appear in the latter end of May, are white, forming an erect panicle or spike. The seeds resemble those of the preceding species.

About three years ago, another species of this genus, found on the Hamalaya Mountains, has been supposed to yield the true rhubarb. It was described by Mr. Don, under the name of *Rheum australe*, but it is not yet determined whether this or some other species yields the finest Turkey rhubarb. From some trials made with the roots dried at the Botanic Garden, Chelsea, it appears to possess but little or no cathartic power.







*Myroxylon peruiferum.*

Weddell Fecit.



## MYROXYLON PERUIFERUM.

*Sweet-smelling Balsam-tree of Peru.**Class X. DECANDRIA.—Order I. MONOGYNIA.**Nat. Ord. LOMENTACEÆ, Lin. LEGUMINOSÆ, Juss.*

GEN. CHAR. *Calyx* bell-shaped, 5-toothed. *Petals* five, the upper one larger than the others. *Germen* stalked, longer than the corolla. *Legume* with one seed only, at the point.

SPEC. CHAR. *Leaflets* pointed, emarginate. *Claw* of the larger petal twice the length of the calyx.

*Syn.*—Huitziloxitl, *Hernandez Nova Plant. &c. Mexican. Hist.* fol. 51. *f.*

Cabureiba, *Piso. Bras.* 57. 119.

Toluifera Balsamum, *Lin. Sp. Pl.* 549; *Woodv. v. 3. t.* 193.

Myroxylon peruiferum, *Willd. Sp. Pl. v. 2.* 546; *Stokes, v. 2. p.* 471; *Lambert Illustr. of the Genus Cinchona,* p. 92.

FOREIGN NAMES OF THE BALSAM.—*Baume de Perou, Fr.; Balsamo del Peru, It.; Balsamo de Quinquica, Sp.; Peruvianischer Balsam, Ger.*

THE Sweet-smelling Balsam-tree, which yields the precious balsams of Peru and Tolu, is a native of the warmest provinces of Mexico and Peru. It grows in the mountains of Panatahuas, in the forests of Puzuzu, Muna, Cuchero, Paxaten, Pamphaermosa, and in many other countries near the river Maranon, in low, warm, and sunny situations, blossoming in August, September, and October. The natives of the country call the tree by the name of *Quinquino*, and its bark and fruit by that of *Quinquina*. Hernandez says that the Mexican kings cultivated it in their gardens, and that if the trunk or bark be wounded, at any time of the year, but especially at the end of the rainy season, the celebrated and valuable balsam of Peru distils from the wound; “this is of a dark or blackish-orange colour, of an acrid and

somewhat bitter taste, a most powerful but highly agreeable smell." It was discovered by the celebrated Don Jose Cælestino Mutis, of Santa Fe de Bogota, New Granada, who sent specimens of the leaf, flowers, and fruit, to the younger Linneus about the year 1781. The plate which illustrates the following description is taken by permission from Mr. Lambert's valuable work "on the Genus Cinchona," and was made from very fine specimens received from the distinguished author of the "Flora Peruviana et Chilensis," Don Jose Pavon.

It is described by Don Hippolito Ruiz, as a branching and elegant tree, growing to the height of thirty *varas* and upwards. The trunk is thick, straight, smooth, and covered like the branches with a grey, coarse, compact, heavy bark, granulated, of a pale straw colour interiorly, and filled with a fragrant resin, which abounds in every part of the tree. The branches extend almost horizontally. The leaves are alternate, and composed of two, three, four, and sometimes five pair of leaflets, nearly opposite, and ovate-lanceolate acute, but with the apex somewhat obtuse and emarginate, smooth, shining, entire, marked with translucent linear points, like those of the orange-tree, hairy on the under surface, and standing on short footstalks. Many leaves terminate unequally, and in this case consist of five, six, or nine leaflets. The flowers spring from the scars of the young branches, and from the axillæ of the leaves in long downy erect racemes, longer than the leaves, on slender stalks, scarcely an inch long, with a small, concave, ovate bractea at the base of each. The calyx is bell-shaped, dark green, divided into five small, nearly equal teeth, but with one of them so far separated from the rest as to be found under the germen. The corolla is composed of five white petals, four of these narrow, equal, lanceolate, and larger than the calyx; the fifth reflexed, broad, and double the size of the others. The filaments are ten, inclining and inserted into the calyx; bearing elongated, sharp-pointed, sulcated anthers. The germen is oblong, pedicellated, inclining with the stamens to the same side; the style short, awl-shaped and crooked, with a simple stigma. The pericarp or seed-vessel is pendulous, straw-coloured, nearly six inches in length, club-shaped, somewhat curved, globular near the top, and terminated by the curved style.



It contains in a cell in the globular part, a single seed, which is crescent-shaped, projecting from the cell, and between this and the lining of the pericarp is filled with a yellow liquid balsam, which in time dries and becomes as hard as resin.—Fig. (*a*) represents a flower magnified; (*b*) the curved germen surrounded by the bell-shaped calyx; (*c*) the one-celled pericarp, showing the projecting seed; (*d*) the crescent-shaped seed.

“The balsam of Quinquino,” continues Ruiz, “is procured by incision at the beginning of spring, when the showers are gentle, frequent, and short; it is collected in bottles, when it keeps liquid for some years, in which state it is called, ‘*white liquid balsam*.’ But when the Indians deposit this liquid in mats or calabashes, which is commonly done in Carthagená, and in the mountains of Tolu, after some time it condenses and hardens into resin, and is then denominated, ‘*dry white balsam, or balsam of Tolu*,’ by which name it is known in the druggist’s shops.

“It is generally believed, and M. Valmont de Bomare says, in his Dictionary of Natural History, that if an extract be made from the bark, by boiling it in water, it remains liquid and of a blackish colour, known under the name of ‘*Black Peruvian Balsam*.’

“The Indians of Puzuzu, and of some other parts of South America, do not collect the balsam of this tree: whether it is, that they are ignorant of the method of obtaining it, and of its value, or because few trees are found in the neighbourhood of their towns, the only parts which they collect, are the barks most filled with resin, condensed into drops and lumps, and the fruit, in order to sell them in the neighbouring provinces, both of which are used for the purpose of perfuming clothes and apartments.

“The fruit, as well as the bark, being reduced to a coarse powder, they mix with it oil of Maria, Carana, Jacamaca, Lera, or Sebo, and make with it little plasters, which they apply upon the temples and behind the ears, to mitigate the pains of the head-ache and the tooth-ache, particularly the hemicrania.”

QUALITIES AND CHEMICAL PROPERTIES.—The BALSAM OF PERU\* has the consistency of honey, a brown colour, an

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\* A “*balsam*” is a substance possessing the general properties of a resin; but, when heated, or digested in acids, yields benzoic acid.

agreeable smell, and a hot acrid taste. When boiled with water for some time, the liquid separated by the filter reddens vegetable blues, and deposits crystals of benzoic acid in cooling. The water contains no other substance.\* When distilled with water, it yields a very small quantity of reddish limpid oil; and benzoic acid sublimes in the neck of the retort. At 550° the balsam begins to boil, when exposed to heat in a water bath, and some gas is discharged. At 594° the oil, mixed with a little water, comes over pretty fast. At 617° it comes over still more rapidly. Lichtenberg, to whom we owe these experiments, kept four ounces of balsam at that temperature for two hours, and obtained two ounces of a yellowish oil, and a crystallized mass of benzoic acid, which, together with the water, weighed 6½ drachms. The gas obtained amounted to 58 ounce measures; 38 being carbonic acid. The rest burn like olefiant gas.

Saturated solutions of the alkalies and their carbonates form a thick mass when mixed with the balsam; and a solution, when saturated with sulphuric acid, deposits crystals of benzoic acid. Treated with nitric and muriatic acids, the presence of prussic acid is indicated, benzoic acid sublimes, and Mr. Hatchett found that the residue possessed the properties of artificial tannin. When this balsam is treated with sulphuric acid, artificial tannin is also formed, and the residual charcoal amounts to no less than 0.64 of the original weight of the balsam.†

TOLU BALSAM, which was formerly supposed to be the produce of another tree, comes to England in gourd shells. It is of a reddish brown colour, and considerable consistence; and when exposed to the air becomes solid and brittle. Its smell is fragrant, and continues so even after the balsam has become thick by age. When distilled with water it yields very little volatile oil, but impregnates the water strongly with its taste and smell. A quantity of benzoic acid sublimes, if the distillation be continued.‡ Like the rest of the balsams, it is soluble in the alkalies. When digested in sulphuric acid, a considerable quantity of pure benzoic acid sublimes; and when the solution is evaporated to dryness,

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\* Lichtenberg, Gehlen's Jour. vj. 489.

† Hatchett's Third Series of Experiments on Artificial Tannin, Phil. Trans. 1806.

‡ Lewis, Neumann's Chem. p. 285.



and the residue treated with alcohol, artificial tannin is obtained. When dissolved in nitric acid, it presents nearly the same phenomena as the resins ; but assumes the odour of prussic acid. During the solution in nitric acid, a portion of benzoic acid sublimes. By repeated digestions it is converted into artificial tannin.

**MEDICAL PROPERTIES AND USES.**—*Peruvian balsam* resembles the balsam of Copaiba in its medicinal virtues ; it is however more heating, and does not relax the bowels in its usual doses. It has been employed as an expectorant in catarrh and dyspnœa, when attended by an increased secretion of mucus ; and from its stimulating the stomach, or from a similar action on the exhalents or absorbents of the lungs, it has been found serviceable. In consequence of its stimulating and tonic powers, it has been prescribed as a remedy in paralysis, chronic rheumatism, and leucorrhœa ; and in combination with calomel, it has been efficaciously administered for the tremors which arise from the noxious influence of lead. At one period it was held high in repute as a detergent application to wounds and ulcers. Kirkland and Rowley attest its efficacy in high terms of commendation : and in those irritable ulcers of the leg, which have a glassy surface, and are devoid of granulations, it was much employed by the late Mr. Whately ; and in our own practice, we place great reliance on it. It has also been much employed as a local application to gangrenous affections, and a case is recorded by Mr. Smith in the “*Lancet*,” of a chancre, attended with phimosis and extensive ulcerations of the prepuce, readily yielding to its power. The mode of applying it is by drenching a piece of lint in it, which is to be laid on the diseased part, night and morning, till healthy granulations appear.

**DOSE.**—From thirty drops to a drachm, repeated at proper intervals.

#### MISTURA BALSAMI PERUVIANI.

R Balsami Peruviani	ʒij
Mellis depurati	ʒi
Misturæ Amygdalæ	ʒvifs

Fiat Mistura, cujus sumat cochlearia tria magna sexta quaque hora.

BALSAMUM PERUVIANUM CUM FELLE BOVINO.

R Fellis Bovini            ʒiij  
Balsami Peruviani ʒi    Misce.

Dr. Hugh Smith recommended this application to be occasionally dropped into the ear, when there is a fetid discharge from it; but these articles do not readily combine.

UNGUENTUM BALSAMI PERUVIANI.

R Balsami Peruviani       ʒi  
Unguent. Cetacei       ʒviij    Misce.

This is a useful application for ulcers requiring a gentle stimulus; and is a favourite and efficacious remedy for cracked nipples.

TOLU BALSAM.—This balsam is stimulating and expectorant, and is the mildest of all the balsams. Its tincture and syrup are occasionally added to mucilaginous mixtures when prescribed for chronic coughs; but Tolu balsam is little valued, excepting for its pleasant flavour. In gleet it is sometimes useful, and has been applied to wounds and ulcers, when a slight stimulus was required.

OFF. PREP.—Syrupus Tolutani. L.

Tinctura Benzoini comp. L. E. D.

——— Toluiferæ Balsami. E. D.







*Cassia Senna.*



## CASSIA SENNA.

*Senna, or Egyptian Cassia.**Class X. DECANDRIA.—Order I. MONOGYNIA.**Nat. Ord. LOMENTACEÆ, Lin. LEGUMINOSÆ, Juss.***GEN. CHAR.** *Calyx* 5-leaved. *Petals* 5. *Anthers* three, superior, barren; the 3 lower ones beaked.**SPEC. CHAR.** Leaflets in five or six pairs, lanceolate, equal; a gland above the base of the petioles.*Syn.*—*Senna Alexandrina*, *Raii Hist.* 1742; *Bauh. Pin.* 397; *Moris. Hist.* 2. 201. *f.* 2. *t.* 24; *Dod. Pempt.* 361.*Senna Officinalis*, *Gærtn. de Fruct.* ii. 312. *t.* 146.*Cassia Lanceolata*, *Lam.* 22. *Forskal Egypt*, 85. *n.* 58.*Cassia Senna*, *Lin. Sp. Pl.* 9. *Willd.* ii. 513. *Stokes Bot. Mat. Med.* ii. 457.**FOREIGN.**—*Senè*, Fr.; *Senna*, Ital.; *Sennabläter*, Ger.; *Senà*, Arab.; *Senà Mecci*, Hind. *Sana pat*, Beng.; *Nilavérei*, Tam.

THIS plant, which furnishes the leaves known in commerce under the name of Senna, is a low annual, growing spontaneously in Syria, Arabia, and Upper Egypt, whence it is imported into Europe chiefly from Alexandria; hence it has obtained the name of Alexandrian Senna. It is cultivated in Italy, the West Indies, and some other parts of the world. According to Burckhard, the best grows in the valleys of Nubia, where it is called *Abyreygia*; flowering in July and August.

Senna rises with a somewhat woody, erect, branching stem, to the height of about two feet. The leaves are alternate, smooth, flat, doubly pinnated, and furnished at their base with two narrow pointed stipules; each leaf is composed of five or six pair of oval, entire, pointed, sessile leaflets, about an inch long, and one fourth of an inch broad, of a firm texture, and bright yellowish green colour. The flowers are pale yellow, borne in loose axil-

lary racemes, on the upper part of the stem. The calyx is monophyllous, five-toothed; the teeth are obtuse, concave, and deciduous. The corolla consists of five roundish, entire, concave petals, the three lower ones largest; the filaments are ten, the three inferior ones longer than the others, and furnished with large curved anthers: the germen is cylindrical, supporting a short incurved style, and an obtuse stigma. The fruit is described by Gærtner as an ovate kidney-shaped membranous legume, with foliaceous appendages, marked with capillary, transverse, parallel striæ, bivalve, with six or nine cells, and divided by very thin transverse partitions, each containing one oblong heart-shaped seed. Fig. (*a*) represents a petal; (*b*) a seed.

The purgative qualities of Senna were known to the Arabian physicians, Serapion and Mesue, who flourished about the beginning of the ninth century, and used it as a medicine. Actuarius, a Greek physician, who lived in the thirteenth century, also notices it, but like Mesue, employed the pod, not the leaves. A variety, the *Senna Italica*, or blunt-leaved Senna, has been cultivated in the south of France, but is less purgative. In large doses, it has been employed by Dr. Wright of Jamaica, at which island it grows on the banks of the sea.

Senna has been grown in England, but as it is an annual, its seeds must be sown in the early part of the spring on a hot-bed; “and when the plants are fit to remove, each must be placed in a separate pot, filled with light earth, and plunged into a moderate hot-bed, where they should be shaded till they have taken fresh root; after which they should have fresh air admitted to them, every day in proportion to the warmth of the season, and should be frequently watered. When the plants have filled the pots with their roots, they should be shifted into larger; and if they be too tall to remain in the hot-bed, they must be placed either in the stove, or a glass case, where they may be defended from the cold, but in warm weather have plenty of air. It is very rare that it perfects its seeds in England.”

In our English market, three sorts of Senna are met with, viz.—the Alexandrian, Tripolian, and East Indian. The two former are very much alike in appearance, but the Alexandrian



has the most aromatic and grateful odour, and possesses greater purgative powers. The East Indian has a leaf as long again as either of the other two, and according to Dr. Ainslie, “ is a product of Arabia Felix, (about Mocho,) or from a more northern part of that country, the territory of Orbuarish. It is, in fact, the sharp-pointed leaved Senna, the *cassia lanceolata* of Forskál, which he distinguishes, *foliis 5-jugis, lanceolatis, æqualibus*, and tells us, is common at Surdud, and near Mor. The Senna in common use amongst the Indian practitioners is the *blunt-leaved*, (Senna Italica. S. foliis obtusis. Bauh. Pin. 397.) It is a common plant on the Coromandel coast, but is not near so valuable a medicine as the sharp-pointed Senna.

Most of the Senna used in England is the produce of Egypt, the best sort called in Nubia, *guebelly*, where it grows wild.”\*

Bartholin asserts, that the leaves of *Colutea arborescens*, (common bladder Senna,) which is cultivated in this country as an ornamental plant, may be substituted for those of senna.

According to Deslongchamps, in his “ Manuel des Plantes Usuelles Indigenes,” p. 30 of the 2d Memoir, vol. ii. there are six different plants which might be substituted for Senna; viz.—*Globularia alypum*; *Anagyris fætida*; three species of *Daphne*; and the *Cneorum tricocon*; the best of which seems to be the first; three drachms of the leaves producing ten evacuations. The last, which is indigenous to America, is stated by Barton to be equal in its effects to the Alexandrian Senna.

M. Nectoux, quoted by Dr. Barton† entertains the opinion, that authors have hitherto been mistaken in the opinion, that the senna of the shops is the produce of the Cassia Senna of Linnæus. His investigations led him to believe, that “ the true Senna is in reality a weed, with which the real Senna is adulterated in Egypt, to augment the quantity produced by the annual growth of the other two plants, which constitute the Senna.”

“ Nubia is a narrow valley through which the Nile flows. The view is confined on the two sides, alternately, by a lofty chain of granitic

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\* Materia Indica.

† Materia Medica of the United States.

mountains. Senna and arguel are the chief productions of this country. They are not the objects of particular cultivation, but grow naturally on the sides of the hills and in the ravines. Each person has the privilege of gathering what grows in his district. Two crops are annually made, the productiveness of which depends on the duration of the rains which fall periodically every year. The first and most fruitful is gathered at the termination of the rains, which commence at the summer solstice, and end in August and the beginning of September. The second crop is gathered in April, and is small. No expense attends the preparation of these plants, which consists in cutting and spreading them on the rocks to dry. This process in that warm climate only occupies a single day. The senna and arguel are put up in small bales, weighing about a quintal each, and are conveyed by camels to Sienne and Darao. They are sold for 300 to 340 parats (eleven or twelve francs) each. They are afterwards carried to the farmer general, at Cairo, who purchases them at eleven or twelve pataques (thirty to thirty-three francs) and sold by him to the European factors for thirty or thirty-three pataques (one hundred and six francs) the quintal. Mr. Nectoux was informed on good authority, that the produce of the two crops varies annually, from seven to eleven hundred quintals; one-third of which is arguel. The demand from Europe is generally from fourteen to fifteen hundred quintals; and never less than twelve. The Egyptian merchants therefore mix from three to four hundred quintals of the *sena-belledy*, or wild senna (cassia senna of Linnæus) with that brought from Nubia. This adulteration is made at the *entrepots* of Kene, D'Esnech, Darao, and Sienne; around which places the senna-belledy grows abundantly. Mr. Nectoux concludes by inviting the attention of his government to the introduction and culture of sena (*cassia lanceolata* of Lanark), and arguel (*cynanchum oleæfolium* of Nectoux), in its colonies, with the view to avoid this adulteration.

QUALITIES AND CHEMICAL PROPERTIES.—The leaves of Senna have a faint and sickly odour, and to the taste are at first sweetish, and afterwards nauseous and bitter. It appears that when cultivated in the south of France, this bitter principle is lost, and although destitute itself of purgative properties, its absence renders the leaves less aperient; and as the pods, the part used by the Arabian physicians, contain only the purgative principle, they are comparatively feeble, unless the defect be compensated by art. Dr. Cullen has observed, that a much smaller quantity of the leaves is required for a dose if they be infused in company with some bitter plant; and it has been found that the watery infusion of *rhubarb* is rendered more purgative by the addition of *calumba*. The infusion is of a dark



reddish brown colour, and on exposure to the air, the extractive matter which it contains, becomes oxidated; it is therefore apt to gripe, unless combined with aromatics and soluble tartar, or other neutral salts. Some affirm that a pint of boiling water only takes up the active matter of one ounce of the leaves; but if three ounces be used, and submitted first to expression and afterwards to infusion, it will be found that their virtues are gone. Besides extractive, resin, mucilage, saline matters, and a bitter element, which senna contains, M. M. Lassaigue and H. Fenuelle have separated the purgative principle, to which they have given the name of *Cathartine*. A decoction of the leaves was made, and after being filtered, was precipitated by acetate of lead. The precipitate collected was diffused through water, and sulphurated hydrogen passed through it. The liquor filtered was evaporated to dryness, and digested in alcohol, and the alcoholic solution then evaporated to dryness. It contained acetate of potass, which was separated by alcohol acidulated by sulphuric acid; then filtering to separate the sulphate of potass insoluble in this fluid; precipitating the excess of sulphuric acid by acetate of lead; decomposing this latter salt by sulphurated hydrogen; filtering again, and evaporating to dryness, a substance was obtained, which was considered the purgative principle of Senna. This substance is uncrystallizable, of a yellow reddish colour; of a particular smell; and of a bitter nauseous taste. It is soluble in alcohol and water in all proportions; insoluble in æther. It becomes moist in the air; and purges in very small doses.†

Precipitates are produced from the infusion of Senna, by the strong acids, the alkaline carbonates, lime water, solutions of nitrate of silver, oxymuriate of mercury, superacetate of lead, tartarized antimony, and infusion of yellow bark: which are therefore *incompatibles*.‡

**MEDICAL PROPERTIES AND USES.**—Senna is an active purgative, and as its operation can generally be relied on, is frequently administered in the form of infusion, combined either

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\* Annales de Chimie, xvi. p.20.

‡ Thompson.

with manna or tamarinds, soluble tartar, Epsom salts, &c. Dr. Cullen recommends coriander seeds, and Dr. Paris *Bohea tea*, to cover its nauseous taste; and guaiacum is said to increase its powers. It is very apt to gripe, and is therefore contra-indicated when the bowels are subject to spasmodic pains. The lenitive electuary (*confectio sennæ*) is an elegant and agreeable laxative, and is usually recommended for habitual costiveness, and to pregnant females. We have lately had our attention excited to a preparation, manufactured by Mr. Bass, Chemist, of New Bond-street; it is a concentrated essence, made, we understand, without a high temperature being applied: and one drachm to an ounce of water, will form a mixture of Senna equal in strength to the infusion which is usually prescribed. When it is considered that the infusion will not keep many hours without precipitating an oxidized extractive, and that it is often wanted at a minute's notice, we think that our readers will be thankful for our apprising them of so valuable a preparation, which after several trials we have ascertained to be worthy of reliance.

OFF. PREP.—*Tinctura Senna. L. E. D.\**

*Confectio Sennæ. L. E. D.*

*Extractum Cassiæ Sennæ. E.*

*Infusum Sennæ. L. D.*

*Infusum Tamarindi cum Senna. E. D.*

*Pulvis Sennæ compositus. L.*

*Tinctura Sennæ composita. E.*

*Syrupus Sennæ. D.*

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\* As this tincture is a domestic remedy known by the name of Daffy's Elixir, we subjoin the method of preparing it:

"Take of Senna leaves, three ounces; Carraway seeds bruised, three drachms; Cardamom seeds bruised, a drachm; Raisins stoned, four ounces; proof spirit, two pints. Macerate for fourteen days in a gentle heat, and strain."

It is a good stomachic and purgative, and is efficacious in flatulent cholera, atonic gout, and as an opening medicine for those whose bowels have been weakened by intemperance.

DOSE.—From a quarter of an ounce to one ounce.







*Cassia fistula.*

G. Reid. del.

Weda



## CASSIA FISTULA.

*Purging Cassia.*

SPEC. CHAR. *Leaflets* in five pairs, ovate-lanceolate, smooth; petioles without glands.

Syn.—*Cassia fistula Alexandrina*. Bauh. Pin. 405; Tourn. Inst. 69; Raii Hist. 1746. Commel. Hort. 1. p. 215. t. 110; Rumph. Amb. 2. p. 83. t. 21.

Siliqua aut *Cassia purgatrix arabum*, carobiis similis. Lob. Jc. 2. 104.

*Cassia nigra*. Dod. Pempt. 787.

Conna. Rheed. Malab. v. 1. p. 37. t. 22.

*Cassia solutiva*. Matth. Valg. v. 1. 45. f.

*Cassia fistula*. Lin. Sp. Pl. 540; Willd. v. 2. p. 518; Hort. Kew. v. 3. p. 27; Plenck. Icon. t. 327; Swartz. Obs. 59; Alpin, Ægypt, p. 2. t. 1; Hernand. Mexic. Blackw. t. 381; Sloan. Jam. 2. 42; Woodv. t. 163; Stokes, v. 2. p. 453. Gærtn. v. 2. t. 147.

FOREIGN.—*Casse de Contiques*, Fr.; *Cassia Fistola*, It.; *Canasistola*, Sp. and Port.; *Rohremrachtige Cassie*, *Fistulkassie*, Ger.; *Cassie*, Dan. and Swed.; *Tlai Xiem*. Cochinch.

THIS species of *Cassia* is a native of Egypt and the warmer parts of the East Indies, and is naturalized in the West Indies, and South America. It is the *Cassia solutiva* of the Arab and Greek physicians of the middle ages, as appears from the writings of Avicenna and Myrepsus, and is supposed to have received the same generic appellation as that which from time immemorial has distinguished the oriental aromatic spice, from the circumstance of its agreeable odour; for we are told by Alpinus, when he was in Egypt, in the latter part of the 16th century, that the natives took great delight in walking early in the morning, in the spring season, near plantations of this kind of *Cassia*, regaling themselves with the fragrance of the flowers. The *Cassia fistula* was cultivated in England by Philip Miller, in 1731. Dr. Hasselquist, who observed it on the banks of the Nile, growing among the date trees, near Alexandria, says it flowers in May; and the Arabs call

it *Hearsciambar*. Bruce asserts, that it is a native of Abyssinia.

It rises, when full grown, to the height of thirty or forty feet, and is branched towards the top. The bark, especially upon the trunk, is brownish, or ash-coloured, very much furrowed and cracked. The wood is white and soft. The leaves are alternate, pinnated, composed of five or six pairs of ovate-oblong, pointed, undulated leaflets, of a pale green colour, finely nerved with a prominent midrib underneath, and supported on short footstalks. The flowers are large, odorous, yellow, veined, and produced in long pendant axillary racemes. The calyx consists of five oblong, blunt, greenish, crenated leaves. The corolla is composed of five petals, which are concave, roundish, unequal, spreading, and waved. The germen is slender, cylindrical, and curved into a semicircle. The fruit is a long woody dark brown pod, about an inch in diameter, and nearly two feet in length, cylindrical, with two longitudinal furrows on one side, and one on the other, divided by thin plates or partitions into transverse cells, each containing one smooth, oval, compressed seed, of a dusky yellow colour, imbedded in a soft black pulp.—Fig. (a) represents the pod or legume; (b) a longitudinal section of the same, showing the position of the seeds; (c) two views of a seed.

The pods are said to undergo a kind of fermentation, to prepare them for keeping. In Egypt, according to Hasselquist, they are collected before they are quite ripe, and carried into a very close room, in which has been prepared a bed of palm leaves and straw, six inches deep. On this they lay the pods in a heap; the door is then closely shut, and the next day they sprinkle water on the heap, which is repeated the day following. In this manner the pods lie heaped for forty days, till they become black. Others, says he, dig a hole in the ground to put them in; but this method is greatly inferior to the former.\* Cassia pods are brought to this country principally from the West Indies, packed in casks and cases. The pods of the East India

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\* See Hasselquist's Voyages and Travels.



Cassia are smaller, smoother, and afford a blacker, sweeter, and more grateful pulp, than those which are brought from the West Indies, South America, or Egypt.

QUALITIES.—The pulp, which is the part used, is separated from the woody part and seeds, by passing it through a sieve. It has a faint, somewhat nauseous odour, and a sweet mucilaginous taste.

QUALITIES AND CHEMICAL PROPERTIES.—The pods of Cassia which are heaviest, and in which the seeds do not rattle, are the best, as they contain the greatest quantity of pulp, which is the part used in medicine. The best pulp is of a bright, shining black colour, and of sweetish sub-acid taste. According to M. Henry, it contains sugar, gum, a substance resembling tannin, gluten, and colouring matter soluble in ether.—*Journ. Chim. Med.* ii. 376.

MEDICAL PROPERTIES AND USES.—Both the leaves and flowers are purgative, as well as the pulp. The latter is occasionally used as an agreeable laxative for children; but adults require so large a portion of it to produce effect, that it is never employed for them, excepting when combined with more active remedies. Dr. Cullen conceived that it possessed no advantages over the pulp of prunes, in which opinion we readily coincide. It enters into the composition of the subjoined officinal preparations, to which it imparts a pleasant flavour.

Confectio Cassiæ, L. E. D.

Confectio Sennæ, L. E. D.

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### CASSIA MARILANDICA.—*Maryland Cassia.*

SP. CHAR. *Leaflets* in eight pairs, ovate-oblong, equal; a gland at the base of the petioles.

*Syn.*—Cassia mimosæ foliis, siliqua hirsuta. *Dill. Elth.* 351. t. 260.

Cassia marilandica, *Lin. Sp.* 541; *Willd. v.* 2. p. 524; *Ait. Kew.* 3. p. 29;

*Mich.* 1. p. 261; *Pursh. Fl. Am. v.* 1. p. 306; *Bart. Med. Bot.* 1. p. 137. t.

12. *Schkuhr Handb.* 1. p. 355. t. 113.

ENGLISH.—*Perennial Cassia.* *Wild Senna.* *American Senna.*

THE Maryland Cassia, so named by Linneus, from the country whence it was sent him, is employed in North America as a

substitute for officinal senna. It is extremely common in almost every part of the United States, south and westward of New York, and is figured in Barton's "Vegetable Materia Medica," t. 12. It was first introduced into this country in 1723, by Peter Collinson, Esq., where it flowers from July to October.

*Cassia marilandica* is a beautiful perennial plant, sending up many slender, often simple, herbaceous, erect, cylindrical, smooth, or slightly hairy stems, to the height of three or four feet. The leaves are alternate, pinnated, composed of eight pairs of ovate-oblong, equal leaflets; of a bright green colour on the upper surface, pale underneath, and furnished with a gland at the base of the petioles. The flowers are a golden yellow colour, in short axillary racemes, on the upper part of the stem. The pods are three or four inches long, a little curved, mucronate, and covered with a few scattered reddish hairs.

**MEDICAL PROPERTIES AND USES.**—According to Dr. Barton, the virtues of Maryland senna are those of a mild cathartic, little if at all inferior to that of the senna of the shops. This gentleman informs us, that he has employed it in many instances in place of Alexandria senna, and bears testimony to the high character which the plant has long maintained. He says, "the leaves alone have commonly been used; but I have made use of the dried leaves and follicles, carefully rejecting the leaf-stalks, and beg leave to recommend this manner of employing the plant for medical purposes. I believe the best time for collecting it would be when the pods are ripe, which is about the last of August."







*Swietenia febrifuga.*

Weddell fecit.

Published by J. Churchill Leicester Square, Sept 1828



## SWIETENIA FEBRIFUGA.

*Febrifuge Mahogany-tree.**Class X. DECANDRIA.—Order I. MONOGYNIA.**Nat. Ord. TRIHILATÆ, Lin. MELIÆ, Juss.*

GEN. CHAR. *Calyx* 5-cleft. *Petals* five. *Nectary* cylindrical, bearing the anthers at the mouth. *Capsules* 5-celled, woody, opening at the base. *Seeds* imbricate, winged.

SPEC. CHAR. *Leaves* pinnate, of about four pair in elliptical, roundish leaflets; unequal at the base. *Panicle* terminal, divaricated.

SYN.—*Swietenia Soymida*, *Duncan Tent. Inaug. de Swietenia*, Ed. 1794.

*Soymida* of the Telingas.

*Swietenia febrifuga*, *Sp. Pl. Willd.* 2. 557; *Roxburgh. Coromand. Plants*, 1. p. 16. t. 17.

THIS is a native of the East Indies, growing in the mountainous parts of the Rajahmundry Circar, north of Samulcotah, and Peddapore. The tree was first brought to the notice of European practitioners by Dr. Roxburgh, who discovered that its bark was a valuable astringent and tonic in intermittent fever. It is cultivated with three other species in the botanical garden at Calcutta. On the Coromandel Coast, it is commonly known under the name of *red wood* tree, which its Tamool name implies; flowering about the end of the cold, or beginning of the hot season, and ripening its seeds three or four months after.

The Febrifuge Mahogany is a lofty tree, with a straight trunk of great thickness, and covered with a gray, scabrous, cracked

bark. The branches are numerous ; the lower ones spreading, the upper ascending, forming a very large shady head. The leaves are alternate, and abruptly pinnate, about a foot long, composed of three or four pairs of opposite, petioled, oval, obtuse or emarginated leaflets ; each from three to five inches long, and from two to three broad, smooth, shining, the lower side extending a little further down the petioles than the upper side, and of a bright green colour. The flowers are very numerous, middle-sized, white, and inodorous ; and disposed in very large, terminal, diffuse panicles, furnished with minute bracteas. The calyx is inferior, of one leaf, 5-cleft, oval, deciduous ; the nectary scarcely half the length of the petals, and bellied. The petals are five, ob-ovate, obtuse, concave, and expanding. The filaments are ten, very short, inserted just within the mouth of the nectary. The germen is conical, surmounted by a thick tapering style, crowned with a large targetted stigma, shutting up the mouth of the nectary. The capsule is large, ovate, and 5-valved, with the valves gaping from the top. The receptacle in the centre, is large, spongy, 5-angled ; the angles being sharp, and connected with the sutures of the capsule. The seeds are many in each cell, imbricated, obliquely wedge-shaped, and enlarged by a long membranaceous wing, inserted into a long brown speck, on the upper part of the excavations of the receptacle,—Fig. (a) represents the germen in outline magnified ; (b) the capsule.

The generic name, *Swietenia*, was given to this tree by Jacquin, in honour of the celebrated Baron Van Swieten, first physician to Maria Theresa of Germany, author of some botanical tracts, and well known by his voluminous Commentaries on Boerhaave's Lectures.

The Telingas call this tree *Soymida*. The wood is of a dull red colour, remarkably hard and heavy : it is reckoned by the natives the most durable wood with which they are acquainted : on that account it is used in the building of their temples, and for various other useful purposes. The wood of another species of this genus the common Mahogany (*Swietenia Mahagoni*,) a native of South America, and the West India islands, has an aromatic agreeable smell ; its excellency for domestic purposes is well



known in England, and its bark has been said to possess similar medicinal powers to the *S. febrifuga*.

QUALITIES.—The bark is brittle, compact, of a light red colour internally; externally it is covered with a rough grey epidermis. Its taste is very bitter and astringent, at the same time not in any way nauseous or disagreeable; it yields its virtues to water both by infusion and decoction, and forms an admirable tincture prepared after the same way as the *Tinctura Cinchonæ*. The wood yields an extract very similar to Kino, but is bitter and less astringent.

MEDICAL PROPERTIES AND USES.—This bark, which was first recommended as a tonic by Dr. Roxburgh, has excited little attention amongst European practitioners, but in India is highly prized by our army-surgeons, who use it in all those cases which have been usually benefited by Cinchona. Mr. Breton, who published a paper on it, in the eleventh volume of the *Medico-Chirurgical Transactions*, says, “In a number of cases of confirmed remittent bilious fevers, (commonly called jungle fever,) I have put this bark to the fairest possible test, and as success was uniformly the result of my repeated trials, I think I am warranted in concluding it to be an efficient substitute for the Peruvian bark. In common intermittent fevers, I have employed this bark very extensively, and with invariable success. I have also put this drug to the test of trial in three cases of gangrene and mortification, and in a case of suppurated liver; but as it was accompanied with auxiliaries, I cannot speak so positively of its actual efficacy in these instances. The uniform result, however, of so many experiments, satisfied my own mind, that the *Swietenia febrifuga* answers every purpose of Peruvian bark, in allaying irritability, and restoring strength. . . . . I trust I shall not be accused of being visionary or enthusiastic, when I avow my own conviction, after having long employed this bark in every case where cinchona is indicated, that it forms a completely efficient substitute for the American drug; and that time alone is required to extend that general conviction of its efficacy, which every succeeding experiment will assuredly tend to impress.”

In a letter from Dr. Roxburgh, which accompanies Mr. Breton's paper, he states his continued belief in its efficacy, and recommends the bark to be collected when the sap begins to ascend freely, at which period it separates readily. He also believes the small, or rather middling-sized branches, to yield the bark best suited for medical purposes; and it may be used as soon as it is dry enough for powdering. Messrs. Cochrane, Cheese, Grant and Davidson, &c. have tried it very extensively in India, and confirm all that has been advanced in its favour; and they seem to agree in its being better retained in the stomach when in substance, and in greater quantities, than the Cinchona usually is. Dr. Ainslie also recommends it to the extent of four or five drachms in the twenty-four hours, as a very efficacious medicine; but beyond that quantity, in every instance in which he tried it, it appeared to derange the nervous system, occasioning vertigo and subsequent stupor.

**DOSES.**—Its dose in substance is from one to four, five, and six drachms a day. Both the tincture, and infusion, may be prepared in the manner recommended for cinchona, and may be given in the same way.







*Mimosa serrata?*

C. Reid. del.

London. Published for the Authors Jan. 1. 1830.

Redd



## CXLVII

### BOSWELLIA SERRATA.

*Olibanum-yielding Boswellia.*

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Class X. DECANDRIA.—Order I. MONOGYNIA.

Nat. Ord. MELIIS, Juss.

GEN. CHAR. *Calyx* inferior, 5-toothed. *Petals* five. *Nectary* a crenate ring, surrounding the base of the germen. *Capsule* triangular, 3-valved, 3-celled. *Seeds* solitary, winged.

SPEC. CHAR. *Leaves* pinnate; leaflets serrated, downy. *Racemes* simple, axillary. *Petals* ovate. *Filaments* inserted on the exterior margin of the nectary.

Syn.—*Libanotis thurifera*. Colebrooke in *Asiat. Res.* v. 9. p. 377.

*Boswellia serrata*. Roxb. *Corom.* v. 5. 3, 4.

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IT was formerly conjectured, on the authority of Linneus, that the Olibanum of commerce was the product of the *Juniperus Lycia*, but this opinion appears to be erroneous; for this species of Juniper is a native of the south of France, and the French botanists deny that it yields the resinous gum in question. It is now generally supposed that it is the product of different trees; Lamarck ascribing it to the *Amyris gileadensis*; Forskal and Sprengel to the *Amyris kataf*,\* while Mr. Colebrooke has satisfactorily proved that the *Boswellia serrata* affords that which comes from India.

This species of *Boswellia*, so named by Dr. Roxburgh in memory of the late Dr. John Boswell, of Edinburgh, is indigenous to the mountains of Central India, where it is known under the vulgar name of *Sali*. It is a lofty tree, with the foliage crowded at the extremities of the branches; and is frequent in the forests between the Sone and Nagpur, on the rout to Berar. The leaves are pinnate, consisting of about ten pair of obliquely ovate-oblong, obtuse, serrated, villous leaflets, with a terminal one, about an inch and a half in length, sometimes opposite, sometimes alternate, and supported on short, round, downy petioles. The flowers, which are produced in simple axillary racemes,

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\* Forsk. *Descrip. Plant. cent.* iii. p. 80.

shorter than the leaves, are numerous, small, of a pale pink colour, accompanied with minute bracteas. The calyx is monophyllous, 5-toothed and downy; the corolla consists of five oblong, spreading petals, downy on the outside, and considerably larger than the stamens. The nectary is a fleshy, crenate ring, surrounding the lower two-thirds of the germen. The filaments are ten, alternately shorter, inserted on the exterior margin of the nectary, and supporting oblong anthers. The germen is superior, ovate, with a cylindrical style, and 3-lobed stigma. The capsule is oblong, triangular, smooth, 3-celled and 3-valved, each cell containing a single seed, which is broad-cordate at the base, deeply emarginate, with a long and slender point. Fig. (a) represents a flower somewhat magnified; (b) the capsule; (c) a transverse section of the same; (d) the seed.

Olibanum is chiefly collected in India; but it is also imported in casks and chests from the Levant. It distils from incisions made in the bark of the tree, during the summer months. It is the frankincense of the ancients, the *thus* of the Romans, and the *Λιβανος* of Theophrastus and Dioscorides. The latter writer mentions it as procured from India; and Theophrastus, Hist. Pl. lib. ix. c. 4, says, *Γίνεται μὲν οὖν ὁ λιβανός ἐν τῇ πῶν Αραβῶν χώρα μεσση περὶ τοῦ Σαβα καὶ Ἀδραμίττα, καὶ Κίταβαίρα*. The same observation is made by Strabo, l. xvi. p. 778; Plin. Nat. Hist. lib. vi. c. 28; and Virgil, Geor. i. v. 58.

**QUALITIES.**—Olibanum is in the form of semitransparent masses or tears, of a pale yellowish, or pink colour, solid, hard, and brittle. It has a bitterish acrid taste, and when chewed, sticks to the teeth, and renders the saliva milky. When heated, it burns brilliantly, and diffuses an agreeable odour. Alcohol dissolves three-fourths of it, and water about three-eighths. On distillation alone, it affords a yellowish, fragrant, essential oil. From the analysis of Braconnot, it appears, that 100 parts of Olibanum is composed of 8 essential oil, 56 of resin, 30 of gum, and 5·2 of a matter resembling gum, but insoluble in water and alcohol.\*

**MEDICAL PROPERTIES AND USES.**—The virtues of Olibanum are merely those of a stimulant and diaphoretic. It was formerly much used as a remedy in various diseases of the head and chest, in vomitings, diarrhœa and dysentery; and externally, as a vulnerary. Rive-rius recommends it in pleurisies; and Geoffroy professes to have experienced its success in those diseases, especially after venesection. The dose was from ℥j to ʒj. At the present day it is seldom employed, except as a perfume in the rooms of the sick, and is scarcely entitled to a place in the materia medica.

In the early ages, it was much used as incense in sacrifices; and in modern times, the Greek and Romish churches still retain the use of frankincense in some of their ceremonies.

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\* *Ann. de Chim.* lxxviii. 60.







*Guaiacum officinale*



## GUAIAECUM OFFICINALE.

*Officinal Guaiacum, or Lignum Vitæ.**Class X. DECANDRIA. — Order I. MONOGYNIA.**Nat. Ord. GRUINALES, Lin. RUTACEÆ, Juss.*

GEN. CHAR. *Calyx* 5-cleft, unequal. *Petals* 5, equal. *Capsule* angular, 2 to 5-celled.

SPEC. CHAR. *Leaves* of two pair of elliptical obtuse leaflets.

*Syn.*—Arbor ligni sancti, vel guaiacum, *Seb. Thes.* 1. p. 86. t. 53. f. 2.

Guaiacum jamaicense, *Pluk. Phyt.* t. 53. f. 3, 4.

Lignum Vitæ, *Sloane, Jam. v.* 2. 134. t. 222. f.

Guaiacum officinale, *Lin. Sp. Pl.* 546; *Willd.* 2. p. 538; *Ait. Hort. Kew.* v. 3. ed. 2. p. 83; *Woodv.* v. 1. 43. t. 16; *Stokes Bot. Mat. Med.* v. 2. 486.;

FOREIGN.—*Le gayac officinal*, Fr.; *Guaiaco*, It.; *Guayacan*, *guayaco*, Sp.; *Guaiaco*, Port.; *Das Franzosenholz*; *Pockenholz*; *G wajakholz*, Ger.; *Pekhout Franzostræe*, Dan.; *Fransosenholts*, Swed.; *Bakaut*, Rus.

THIS tree, the wood of which is well known in England under the name of Brazil wood, or *Lignum vitæ*, is a native of Jamaica, Hispaniola, and the warmer parts of America. It has been long known, and appears from the MSS. of Sir Hans Sloane, in the British Museum, to have been first cultivated in this country by the Duchess of Beaufort in 1699. It is said to flower from July to September.

The tree rises to the height of thirty or forty feet, and is near a foot in the diameter of its trunk, with numerous, divaricated, knotty branches, leafy at the ends. The bark is very smooth, variegated with green and white; that of the branches being uniformly ash-coloured, striated, and marked with fissures. The

“ *Sulphuric ether* does not act so powerfully on guaiacum as alcohol. The solution obtained by means of it exhibits the same properties when treated with re-agents as that in alcohol.

“ 5. The *alkaline solutions*, both pure and in the state of carbonates, dissolve guaiacum with facility. Two ounces of a saturated solution of potash dissolved about 65 grains of guaiacum; the same quantity of ammonia only 25 grains; or guaiacum dissolves in about 15 parts of potash, and 68 parts of ammonia. Nitric acid threw down from these solutions a brown precipitate, similar to what is obtained when the alcoholic solution is mixed with the same acid. Muriatic acid, and diluted sulphuric acid, throw down a flesh-coloured curdy precipitate, which in its properties approaches the nature of extractive.

“ Most of the *acids* act upon guaiacum with considerable energy. *Sulphuric acid* dissolves it, and forms a deep-red liquid, which deposits while fresh a lilac-coloured precipitate when mixed with water. When heat is applied the guaiacum is charred.

“ *Nitric acid* dissolves guaiacum completely without the assistance of heat, and with a strong effervescence. When the solution is evaporated, it yields a very large quantity of oxalic acid. No artificial tannin appears to be formed, but rather a substance possessing the properties of extractive.

*Diluted nitric acid* converts guaiacum into a brown substance, similar to the precipitate obtained by nitric acid from the alcoholic solution of guaiacum. This brown matter possesses the properties of a resin.

“ *Muriatic acid* acts but slightly, as the guaiacum soon melts into a blackish mass, which is not acted upon.

“ When guaiacum is distilled, 100 parts of it yielded to Mr. Brande the following products :

Acidulous water . . . . .	5.5
Thick brown oil . . . . .	24.5
Thin empyreumatic oil . . . . .	30.0
Charcoal . . . . .	30.5
Gases, consisting of carbonic acid, and carburetted hydrogen . . . . .	9.0
Loss . . . . .	0.5
	<hr/>
	100.0

The coal, when incinerated, left three grains of lime, but no alkaline substance.

“ Such are the properties of guaiacum, as far as they have been hitherto ascertained. From the preceding detail, it is obvious that guaiacum in many respects coincides with the resins: but it differs from them in three particulars so remarkable, that we cannot avoid considering it as a distinct substance. The *first* of these is the great quantity of charcoal which it leaves when distilled in close vessels. This Mr. Brande found to amount to above 30 per cent.; while the re



sins, in like circumstances, hardly ever leave more than 15 per cent. of charcoal, and often not nearly so much. It is possible, however, and indeed not improbable, that this difference is to be ascribed to the different degrees of heat employed. The *second* peculiarity is the action of nitric acid on guaiacum. This acid does not dissolve the resins without the assistance of heat, but converts them into a brown brittle mass; whereas it dissolves guaiacum completely. The action of this acid on the resins terminates in the formation of artificial tannin, whereas its action on guaiacum terminates in the formation of oxalic acid. This striking difference is alone sufficient to warrant a separation of guaiacum from the resins. The *third* peculiarity is the remarkable suit of changes of colour which guaiacum undergoes when its solutions are treated with nitric acid, and chlorine. Dr. Wollaston first observed that guaiacum becomes green when exposed to light, provided air have access to it; and that the colour is again removed by the application of heat. Hence it is probable that oxygen occasions the change. This opinion is much strengthened by the experiments of Mr. Brande. When guaiacum was put in contact with oxygen gas, it became green sooner than in the open air. When put into chlorine gas it became first green, then blue, and lastly brown; and ammonia, when left in contact with it, restored again its green colour. In like manner, by treating the alcoholic solution of guaiacum with nitric acid, green, blue, and brown precipitates are obtained, according to the length of time that the acid is allowed to act upon it. These facts give considerable plausibility to the opinion of Mr. Brande, that the changes of colour are owing to the combinations of oxygen with the guaiacum; that the green contains the least, and the brown the most oxygen, while the blue is intermediate. Thus guaiacum, in its changes of colour, bears some resemblance to indigo. Mr. Brande has remarked a coincidence also between guaiacum and the green resin of the leaves of plants.

**MEDICAL PROPERTIES AND USES.**—The Guaiacum wood was first employed by the natives of St. Domingo as an antidote against lues venerea. The Spaniards soon acquired a knowledge of its virtues, and introduced it into Spain, as early as the year 1501. The fame of this new remedy was diffused with such celerity through the other parts of Europe, that according to the testimony of Nicholas Poll, more than three thousand diseased persons had derived permanent benefit from the use of it, before the year 1517.\*

A decoction of this wood, made with water, and sometimes with wine,† was administered under every form, and during

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\* Aphrodisacus Aloys. Luisini. Ed. Lugd. 1738.

† Lud. Septalii. Animad. Lib. vii.

every period of the disease ; the physicians directing at the same time purgative medicines, at proper intervals ; confinement to the house ; vapour baths ; and an appropriate course of diet which, was commonly dictated with a tedious exactness, bearing the signature of superstition, rather than of medical science. This process continued during six weeks, and often for a longer time, with such occasional variations as new circumstances might suggest, was long regarded as the most safe, and efficacious mode of treating patients afflicted with syphilis.

The advantages which were connected with this method of cure, were so commonly believed, and acknowledged, that during a considerable period of time, the exhibiting of mercury was not only discontinued, but the practice was publicly censured, as inefficacious and prejudicial. Many of the most eminent writers of the sixteenth century contended that Guaiac was a true specific, having the power of correcting the qualities of the venereal poison, and of expelling it out of the system ; and this opinion was revived, and ably supported in the eighteenth century, by a man whose capacity, learning, and medical science, added lustre to the country and period in which he flourished.\*

Those favourable reports of the virtues of Guaiacum, which maintained their credit through more than two centuries, were not founded merely on the frail basis of partiality, or prepossession ; they were supported by well-attested narratives of its good effects in great numbers of instances, where no mercury had been employed, or when that medicine had done no permanent good ; or when the patients had suffered from it, instead of finding advantage. Yet, notwithstanding the numerous and respectable testimonies which were adduced in proof of the efficacy of this vegetable, its most strenuous advocates were obliged to confess, that Guaiacum was frequently administered in vain. The disappointments which medical practitioners often experienced when they had relied on Guaiacum alone, as a specific remedy, introduced again the more frequent use of mercury ; and, as this active medium was soon employed with more caution and judgment than formerly, a very important change in the mode of

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\* Boerhaave, Prefat. ad *Aphrodisiac*.



treating lues venerea was established. Nevertheless, so firmly were the generality of physicians persuaded of the anti-venereal virtues of Guaiacum, that the same men who contended for the necessity of a nominal salivation, maintained that this vegetable was not less real, though not quite so potent an antidote.\* “When I was intrusted with the care and management of the Lock Hospital in 1781,” says Mr. Pearson, “I observed, that Mr. Bromfield and Mr. Williams had been long accustomed to repose great confidence in the medicinal powers of a decoction of the Guaiacum wood; and that a method somewhat similar to that proposed by Ulric Hulten,† and strongly recommended by Boerhaave, had been adopted in the hospital during many years. The patients for whom it was directed, were those who had previously used the usual quantity of mercury, but who complained of nocturnal pains; who had gummata, nodes, ozæna, and such other effects of the venereal virus, connected with secondary symptoms, as did not yield to a course of mercurial frictions. The diet of these patients consisted of raisins, and hard biscuit; they drank from two to four pints of the decoction of Guaiacum every day; they were ordered to use the hot bath twice in the week; and they commonly took a dose of antimonial wine, and laudanum, or of Dover’s powder, every evening.

“It was not thought necessary, however, to confine such patients to their beds; and they were seldom exposed to the vapour of burning spirit to excite perspiration; for it was deemed sufficient to produce and support a moist state of the skin, without urging the process so far as to occasion profuse sweating. This plan of treatment was sometimes of singular advantage to those whose health had sustained injury from the complicated operation of the disease, combined with confinement, and a long course of mercury. The breaches made in the constitution were repaired; the strength recruited; untractable ulcers were frequently healed; carious bones exfoliated; and those anomalous symptoms which would have been exasperated by mercury, yielded readily to the decoction of Guaiacum. In tracing carefully the history of this

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\* Brassavolus, Fallopius, &c.

† De Morbi Gallici curatione per administrationem Ligni Guaiaci.

once celebrated remedy, nothing can be more evident than this, that it was administered to persons afflicted with very different forms of disease. One numerous class of patients consisted of those, who having used mercury according to the severe, and often injudicious mode which was practised two centuries ago, found themselves harassed with pains, nodes, ulcers, and several other symptoms, from which they were finally relieved by a course of Guaiacum. Hence it was concluded that this medicine was superior, as an antidote to mercury. Another class adopted the Guaiacum course from the first attack of their disease, and deriving sensible benefit, hastily presumed that a cure was accomplished ; but, although their frequent relapses might have shaken their confidence, yet, as the renewal of their Guaiacum course mitigated the violence of their symptoms, and often produced considerable appearances of amendment, they preferred this palliative method of proceeding, to the more distressing concomitants of a course of mercury.

“ In addition to these observations, it may be further suggested, without any violation of candour, or of respect to our predecessors, that at a time when the natural history of Lues Venerea was so imperfectly understood, many morbid appearances totally unconnected with that poison, were nevertheless referred to it; and that the cure of such mistaken symptoms, would contribute greatly to augment the fame of the remedy. When it is therefore considered, that the good effects of Guaiacum are not absolutely confined to those cases, where a quantity of mercury, sufficient to destroy the syphilitic virus has been introduced into the system ; but, that it may operate like a true antidote, suspending for a time the progress of certain venereal symptoms, and removing other appearances altogether ; when subsequent experience nevertheless evinces, that the subdued virus yet remains active in the constitution ; we shall be competent to the explanation of many of those contradictory assertions which abound in writers upon this subject.

“ This decoction, (continues Mr. Pearson,) excites a grateful sensation of warmth in the stomach ; it gives a sense of dryness to the mouth, and creates a thirst ; it also increases the natural



temperature of the skin, and renders the pulse more frequent. If the patient drink the decoction warm, and lie in bed, it generally proves moderately sudorific ; and this effect may be heightened as much as we please, by employing the hot bath, the vapour bath, antimonials combined with opium, or Dover's powder. When the decoction has been continued during ten or twelve days, in the quantity of four pints each day, the patient often complains of heart-burn, accompanied with flatulence ; and he is usually costive during the whole course. If the person expose himself freely to the air while he is taking this medicine, the secretion of urine will be augmented ; but no sensible alteration will take place in the state of the skin. When I have exhibited the decoction in pains of the bones, confining the patient to bed, and enjoining a diet consisting of fluids only, I have rarely seen any beneficial consequences result from the use of it, excepting when it acted as a sudorific : and, in this respect, I think its qualities manifestly inferior to antimony or volatile alkali. In several instances, after persisting in a course of it during four or five weeks, I have not gained any material advantage, and I have remarked, that when the *dolores ostocopi* were not connected with some morbid alteration of the structure of a part, this medicine was of little avail. When the strength, and vigour, have been reduced by a successful mercurial course, with confinement to the house, and when a thickened state of the ligaments, or of the periosteum, remains, or where there are foul, indolent ulcers, these sores will often heal, and the enlarged membranes will subside, during the administration of this decoction. It will often suspend the progress of certain secondary symptoms of Lues Venerea for a short time ; such as, ulcers of the tonsils, venereal eruptions, and even nodes : but, I never saw one single instance in which the powers of this medicine eradicated the disease. I have been recommended by many people to combine Guaiacum with mercury, with the intention of improving the specific power, and of counteracting the injurious effects of that mineral. The advantages to be derived from this compound mode of treatment are by no means well established : for Guaiacum is certainly no antidote against syphilis ; nor have any proofs been given to the public of its ameliorating the action of mercury. When the de-

coction is given during the mercurial course, it sometimes seems to improve the health ; but, as it is very liable to produce complaints in the stomach and bowels, the palpable inconveniences commonly surpass the uncertain disadvantages connected with it ; and as no previous course of the decoction renders the disease milder, nor authorises us to rest satisfied with a smaller quantity of mercury than usual, it will seldom happen that a satisfactory reason can be assigned, for giving the two medicines at the same time.

“ In concluding, I would remark, that I have given the decoction of Guaiacum with the best effects to a great number of patients in cutaneous diseases, in the ozæna, and in scrofulous affections of the membranes and ligaments ; and it appears to me, that it is equally efficacious in such morbid alterations, which are not at all connected with Lues Venerea, nor with the mode of treating it, as in those cases for which it has been most highly celebrated.” To sum up the virtues of Guaiac, it may be said that it is a stimulating medicine ; proving diaphoretic in a dose of a scruple, or half a drachm ; purgative, in large doses ; and when it fails to act on the skin, it increases the secretion of urine. It is frequently employed in chronic rheumatism, to excite sweat ; or in smaller doses still, to keep up a gentle determination to the skin. Combined with opium, its sudorific effects are increased ; and the decoction of the wood is said to increase the power of senna, and to prevent its griping. It is either given in substance in the form of a bolus, or diffused in water by the medium of mucilage. The volatile tincture is more highly stimulating than the simple, and is more generally employed. In full doses, it is said to prevent the formation of that membranous substance which is thrown off by the uterus, and which is often found to accompany the *Paramenia difficilis* of Dr. M. Good.

OFF. PREP. Decoctum Sarsaparillæ comp. L. D.

Decoctum Guaiaci comp. E.

Mistura Guaiaci. L.

Tinctura Guaiaci. L. E. D.

Tinctura Guaiaci Ammoniata. L. E. D.

Pulvis Aloes comp. L. D.

Pilulæ Hydrargyri Sub-muriatis comp. L. E.







*Quassia simaruba.*

A. Reid del.

W. H. Edwards sc.



## QUASSIA SIMARUBA.

*Simarouba Quassia.**Class X. DECANDRIA.—Order I. MONOGYNIA.**Nat. Ord. GRUINALES, Lin. MAGNOLIÆ, Juss. SIMARUBEÆ, Decand.*

GEN. CHAR. *Calyx* 5-leaved. *Petals* 5. *Nectary* composed of five scales. *Drupes* 5, distant, bivalve, placed on a fleshy receptacle.

SPEC. CHAR. *Flowers* monœcious. *Leaves* abruptly pinnate; leaflets alternate, not quite sessile; petiole naked. *Clusters* pannicled.

*Syn.*—*Simarouba amara. Aubl. Guaian. v. 2. 859. t. 331, 332.*

*Euonymus fructu nigro tetragono, vulgo Simarouba. Barrere Franc. Equinox, p. 50.*

*Le Simarouba vel Bois Amer. March. Voy. en Guinee et à Cayenne, v. 2. p. 124; Bancroft's Nat. Hist. Guaiana. p. 84.*

*Quassia Simarouba. Lin. Suppl. 234; Willd. Sp. Pl. v. 2. p. 568; Ait. Kew. v. 3. p. 42; Woodv. v. 2. t. 76; Wright in Trans. Roy. Soc. Edin. v. 2. p. 73; Lunan. Hort. Jam. v. 2. p. 521.*

FOREIGN.—*Simarouba, Fr.; Simarouba, It.; Simarube Quassia, Ger.*

THE Wing-leaved or Simarouba Quassia, is a native of various parts of South America and the West Indies, growing in a sandy soil; and flowering in November and December. It is known in Jamaica by the names of Mountain Damson, Bitter Damson, and Stave-wood. The bark has been known in Europe as an article of the materia medica for more than a century, but it is not many years since the species of plant was accurately determined. Dr. Wright, who has given a full account of this tree, informed us that, in 1773, specimens of the fructification were sent from Jamaica, in September, to Dr. Hope, at Edinburgh, with some dried bark of the roots, and that

the following year specimens were also transmitted to Dr. John Fothergill, of London, who sent them to Linneus, at Upsal. It was introduced in the royal garden at Kew, by Mr. Alexander Anderson, in 1787, but it has not yet blossomed.

This tree is common in all the woodlands of Jamaica. It grows to a considerable height, sending off alternate, spreading branches covered with a smooth, grey bark, marked with broad yellowish spots. The wood is hard, white, and without any sensible bitter taste. The leaves are pinnate, and stand alternately upon the branches; each leaf consists of six, seven, or eight leaflets, placed alternately on short petioles, two inches long, obvate, rather narrow, entire, smooth, of a deep green colour above, and whitish beneath. The flowers, which appear about the beginning of April, are of a yellowish white colour, monœcious, or, according to some writers, diœcious, and placed in branched spikes or long axillary panicles. In Jamaica, according to Dr. Wright, the male flowers are never found on the same tree with the female. The calyx is small, monophyllous, and divided into five obtuse, erect segments. The petals are five, lanceolate, equal, spreading, bent outwards, and triple the length of the calyx into which they are inserted. The nectary, in the male, is a small, hairy scale, affixed to the inner side of the base of each filament; in the female, the scales are placed in a regular circle. The filaments are ten, equal, about the length of the corolla, and furnished with oblong incumbent anthers. The receptacle is orbicular, fleshy, and marked with ten furrows. The germen is ovate, composed of five roundish germens adhering together, crowned with an erect, cylindrical style, about the length of the corolla, and divided at the top into five recurved stigmas. The fruit consists of five ovate, black, smooth, one-celled berries, all standing on a fleshy pentagonal receptacle, and opening spontaneously when ripe; each berry containing a solitary oblong pointed nut, or seed. Fig. (*a*) exhibits a male flower; (*b*) a female flower; (*c*) nectary, with the stamen and anther; (*d*) the five berries attached to the common receptacle; (*e*) a berry detached; (*f*) the same cut across to show the nut; all magnified except the two last.



**QUALITIES AND CHEMICAL PROPERTIES.**—It is the root\* of this tree which furnishes the bark termed Simaruba quassia. It is brought to us in long pieces of various sizes, which are rolled or curled inwards. They are very fibrous, tough, light, of a greyish colour externally, and of a yellow internally: they are also scaly, warted, and marked with prominent transverse furrows. Simaruba is inodorous, but powerfully bitter. It gives out all its active matter to alcohol, and water, by maceration, and forms with them a yellow solution. It seems to impart its virtues more perfectly to cold than to boiling water; the cold infusion being rather stronger in taste than the decoction. The infusion, which is of a transparent yellow colour while hot, grows turbid and of a reddish-brown as it cools: it is not affected by the sulphate of iron, and muriate of tin occasions no precipitate.

According to an analysis by M. Morin, (*Journ. Pharm.* viii. 57,) it contains, 1st, a resinous matter; 2d, volatile oil, having the odour of benzoin; 3d, acetate of potass; 4th, an ammoniacal salt; 5th, malic acid, and traces of gallic acid; 6th, *quassine*;† 7th, malate and oxalate of lime; 8th, some mineral salts, oxide of iron, and silex; 9th, ulmine and woody matter.

**MEDICAL PROPERTIES AND USES.**—This bark was introduced into British practice many years ago, by Dr. Wright, as a valuable tonic and astringent in chronic diarrhœa, dysentery, and intermittent and remittent fevers. It had, however, been previously known in France, having been brought to that country from Guaiana about the year 1710. It is recorded, that in the years 1718 and 1720; an epidemic dysentery prevailed very generally in France, which resisted all the medicines usually employed in such cases; small doses of ipecacuanha, mild purgatives, and astringents, were found to aggravate rather than to relieve the disease. Under these circumstances, recourse was had to the cortex simaruba, which proved remarkably successful, and first established its medical character in Europe. Dr. Wright says, most authors who have written on the Simaruba agree that in fluxes it restores the lost tone of the intestines, allays their spasmodic motions, promotes urine and perspiration, removes the low-

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\* The Dublin College has fallen into an error in designating the wood, which is inert, as the part used in medicine. M. Fée observes, "Nous avons vainement cherché des parasites sur l'épiderme du simarouba, qui est bien certainement l'écorce de la racine, et non celle du tronc."—*Cours D'Histoire Naturelle Pharmaceutique*, p. 600. t. 1.

† For a detailed account of this principle, see *Quassia Excelsa*.

ness of spirits attending dysenteries, and disposes the patient to sleep; the gripes and tenesmus are removed; and the alvine evacuations are changed to their natural colour and consistence. In a moderate dose, it occasions no disturbance or uneasiness, but in large doses it produces sickness at the stomach and vomiting.

“Modern physicians have found from experience, that this medicine is only successful in the third stage of dysentery, where there is no fever, where too the stomach is no way hurt, and where the gripes and tenesmus are only continued by a weakness of bowels. In such cases, Dr. Monro gave two or three ounces of the decoction every five or six hours, with four or five drops of laudanum, and found it a very useful remedy. The late Sir John Pringle, Drs. Huck Saunders, and many others, prescribed the cortex simaruba in old and obstinate dysenteries and diarrhœas, especially those brought from warm climates. Fluxes of this sort, which were brought home from the siege of Martinico and the Havannah, were completely and speedily cured by this bark. The urine, which in these cases had been high coloured and scanty, was now voided in great abundance, and perspiration restored. Dr. James Lind, at Haslar Hospital, says, that the simaruba produced these effects sooner, and more certainly, when given in such quantity as to nauseate the stomach. Dr. Saunders remarks, that if the simaruba does not give relief in three days, he expected little benefit from its farther use; but others have found it efficacious in fluxes after a continued use for several weeks. My own experience, and that of many living friends, are convincing proofs to me of the efficacy of this medicine; and I hope the simaruba bark will soon be in more general use.”

Dr. Cullen says, that the high character given of the virtues of this bark, has not been ascertained in his own experience, and it is now seldom prescribed by British practitioners. It is commonly given under the form of infusion, in the proportion of ʒij. or ʒiij. drachms to a pint of water; the dose may be ʒij. twice or thrice a day. In substance, the dose is from ʒj. to ʒß.

OFF PREP.—Infusum Simarubæ, L.







*Quassia amara.*

G. Reid del.

W. H. W. sculp.



## QUASSIA EXCELSA.

*Lofty, or Ash-leaved Quassia.*


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SPEC. CHAR. *Flowers* polygamous. *Stamens* 5.  
*Leaves* pinnate; leaflets opposite, petioled; common  
 stalk naked.

Syn.—*Quassia polygamia.* *Trans. Roy. Soc. Edin.* v. 3. p. 205. t. 6.

*Quassia excelsa.* *Swartz in Stockh. Trans.* for 1788, p. 302. t. 8; *Prodr.*

*Ind. Occid.* v. 2. 742; *Willd. Sp. Pl.* v. 2. p. 569.

*Unchte Quassie, Nom. Triv. Willd.*

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THIS species of *Quassia* grows spontaneously in the mountainous woods of Jamaica and the Caribbean Islands. It has been long known in the West Indies, not only as an excellent timber, but as a substitute for the *Quassia amara*, in the cure of intermittents, and bilious remittent fevers. By the English it is called *Bitter Wood*, and in the windward Islands the *Bitter Ash*. The bark has been much employed as an article of the materia medica, and the wood is imported into this country in considerable quantities for the purposes of the brewers of ale and porter. Sir Hans Sloane describes the *Quassia excelsa* in his catalogue, and refers to Plunkenet Pl. 205, f. 3, which, however, is a different plant. Dr. Patrick Brown, and after him Mr. Long, in their Histories of Jamaica, notice this tree by the names of *Xylopicrum*, *Xylophia Glabra*, *Bitter Wood*, or *Bitter Ash*. Dr. Wright, in his account of the Medicinal Plants growing in Jamaica, mentions this species of *Quassia* under the title of *Picrania amara*; and Dr. Olaaf Swartz, who examined most of the plants of Jamaica, and the other West India Islands, styles it *Quassia excelsa*. No accurate description of the tree had, however, been given, till Mr. John Lindsay, a surgeon,

resident in Jamaica, published an account of it, with a figure, in the 3rd volume of the Transactions of the Royal Society of Edinburgh. Our drawing, which represents a cluster of the flowers rather under the natural size, with a leaf and fruit, was made from a dried specimen in the herbarium of the illustrious Linneus, now in the possession of the Linnean Society of London.

The *Quassia excelsa* is a beautiful, tall, and stately tree, frequently 100 feet in height, and 10 feet in circumference, with a straight, tapering trunk, sending off its branches towards the top, and covered with a smooth grey, or ash-coloured bark. The bark of the roots is of a yellowish colour, somewhat like that of the simaruba. The wood is of a pale yellow colour, tough, but not very hard, and takes a good polish. The leaves are pinnate, and composed of from four to eight pairs of nearly opposite, elliptical, pointed, firm, entire, smooth leaflets, from two to four, or even five inches in length, on short footstalks, with a terminal leaflet; the ribs reddish; and the young leaves are covered with a fine brownish down. The flowers are in clusters, or panicles, from the lower part of the last shoot before the leaves, bearing numerous small, pale, yellowish green flowers, some male, the rest hermaphrodite, in the same cluster: the male flowers are nearly similar to the hermaphrodite, except that they have the rudiments only of a style: the calyx is very small, with five equal, ovate, pointed segments; the corolla consists of five equal, lanceolate petals, shorter than the filaments. Swartz describes the nectary of five minute, villous scales, contrary to the remark of Willdenow, under his *Swingera*, (Sp. Pl. v. 2. 569), where it is said to be wanting in this species of *Quassia*. The filaments are mostly five, seldom four or six, a little longer than the petals, downy, and supporting roundish anthers. The germen is ovate, with a slender style and trifid stigma. The fruit is a small black drupe, round, smooth, and of the size of a pea. These drupæ are usually three, sometimes two, and often only one, attached sideways to a round fleshy receptacle. It flowers in October and November, and the fruit is ripe in December and January. Fig. (a) exhi-



bits a male flower ; (*b*) a stamen ; (*c*) an hermaphrodite flower ; all somewhat magnified ; (*d*) a transverse section of the fruit.

QUALITIES AND CHEMICAL PROPERTIES.—This wood is sent to us in billets, of various sizes, which are reduced into shavings by the druggist. These shavings are of a pale yellow colour, perfectly inodorous, but intensely bitter. The bitterness is extracted equally by alcohol and water. When water is digested over Quassia for some time, and evaporated afterwards to dryness in a low heat, a brownish yellow substance remains, which retains a certain degree of transparency. It continues ductile for some time, but at last becomes brittle. This substance is called *Quassin* by its discoverer, Professor Thompson, of Glasgow, and is considered by him as Quassia in a state of purity. *Quassin* possesses the following properties :—

Its taste is intensely bitter. Its colour, brownish yellow. When heated, it softens, swells, and blackens ; then burns away without flaming much, and leaves a small quantity of ashes. It is very soluble in water and alcohol. It does not alter the colour of infusion of litmus. Lime-water, barytes-water, and strontian-water, occasion no precipitate ; neither is any precipitate thrown down by silicated potass, aluminated potass, or sulphate of magnesia. The alkalis produce no change in the diluted solution of the bitter principle. Oxalate of ammonia occasions no precipitate. Nitrate of silver renders the solution muddy, and a very soft flaky, yellow, precipitate falls slowly to the bottom. Neither corrosive sublimate nor nitrate of mercury occasion any precipitate. Nitrate of copper, and the ammoniacal solution of copper, produce no change ; but muriate of copper gives the white precipitate, which falls when this liquid salt is dropped into water. Sulphate and permuriate of iron occasion no change. Muriate of tin renders the solution muddy, but occasions no precipitate, unless the solution is concentrated ; in that case a copious precipitate falls. Acetate of lead occasions a very copious white precipitate ; but the nitrate of lead produces no change. Muriate of zinc occasions no change. Nitrate of bismuth produces no change, though when the salt is dropped into pure water a copious white precipitate appears. Tartar emetic produces no

change; but when the muriate of antimony is used, the white precipitate appears, which always falls when this salt is dropped into pure water. Muriate and arseniate of cobalt occasion no change. Arseniate of potass produces no effect. Tincture of nutgalls, infusion of nutgalls, and gallic acid produce no effect. These properties, remarks Dr. Thompson, are sufficient to convince us that the bitter principle differs considerably from all the other vegetable principles. The little effect of the different re-agents is remarkable; nitrate of silver and acetate of lead being the only two bodies which throw it down. These two salts are, therefore, incompatible in formulæ with it.

**MEDICAL PROPERTIES AND USES.**—Quassia is a simple and powerful bitter, possessing no aromatic principle. It is much employed as a cheap and useful tonic in dyspepsia, diarrhœa, remittent, intermittent, and continued fevers. It is usually given in the form of infusion, combined with neutral salts, or mineral acids. Orange-peel renders the infusion more grateful to the stomach. When recommended for intermittents it is prescribed in powder in doses from ten to thirty grains; but its bulk renders its nauseousness almost insupportable, so that it is seldom administered in this shape.

**OFF. PREP.**—Infusum Quassiae, L.

Infusum Quassiae Excelsæ, E.

Tinctura Quassiae Excelsæ, E. D.







*Quassia amara.*

*G. R. & C. del.*

*H. & C. sculp.*



## QUASSIA AMARA.

*Bitter Quassia.*


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SPEC. CHAR. *Flowers* hermaphrodite. *Leaves* pinnate; leaflets opposite, sessile; common stalk jointed, winged. *Flowers* racemose.

Syn.—*Quassia amara*. *Lin. Suppl.* 235; *Amæn. Acad.* v. 6. 421. t. 4; *Willd. Sp. Pl.* v. 2. p. 567; *Ait. Kew.* 3. p. 42; *Plenck. Icon.* 333; *Woodv.* 2. t. 77; *Bot. Mag.* v. 13. t. 497.  
 Echte Quassie. *Nom. Triv. Willd.*

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THIS beautiful shrub is a native of Surinam, and was introduced in 1790, by Mr. Alexander Anderson, to the royal garden at Kew, where it blossoms tolerable freely, and continues flowering great part of the summer. It is the true officinal Quassia, but being very rare, and of small bulk, its place is usually supplied by the *Quassia excelsa*, which is imported in considerable quantities, not only for medical purposes, but as a substitute for hops. Willdenow, speaking of this plant, says, “*Quassia amara* est planta rarissima, lignum amaritie reliquis palmam præripit. Lignum quassiæ venale non ex hoc frutice venit; colligitur a quassia excelsa, quæ minus amara.”\*

The Bitter Quassia, as before observed, is a shrub rather than a tree, is branched, and covered with an ash-coloured bark. The leaves are alternate, consisting of two pairs of leaflets, with a terminal one; they are elliptic-lanceolate, entire, veiny, very smooth, sessile, two or three inches in length, and of a deep green colour; the common footstalk is linear, articulated at the insertion of each pair of leaflets, and winged, or edged on each side, with a leafy membrane, which gradually expands towards

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\* *Lund, Act. Soc. Hist. Nat.* I. p. 68.

the base of each pair. The flowers are all hermaphrodite, of a bright scarlet colour, and terminate the branches in long spikes, drooping one way; the bractees, or floral leaves, are lanceolate, reflexed, coloured, and placed alternately upon the common peduncle. The calyx is small, persistent, and five-toothed. The corolla consists of five lanceolate, equal petals, which is never fully expanded, but the petals, as Mr. Curtis remarks, being twisted spirally, curl round one another, and open in an irregular manner. At the base of the corolla is placed the nectary, which consists of five roundish, coloured scales; the filaments are ten, slender, somewhat longer than the corolla, and crowned with simple anthers, placed transversely; the receptacle is fleshy, and orbicular; the germen is ovate, five-parted, supporting a slender style, longer than the stamens, and terminated by an awl-shaped stigma.

The generic name *Quassia*, was originally given by Linneus to this species, in honour of Quassi, a negro at Surinam, who discovered the virtues of the wood, in curing the malignant fevers of that country. In consequence of a valuable consideration this secret was disclosed to his patron, Governor Dalbergh, who sent specimens of the wood to Stockholm, in the year 1356; and since that time it became known in Europe, particularly by means of a Dissertation, printed in the *Amœnitates Academicæ*, first published in 1763.

**QUALITIES.**—The roots, bark, and wood of this tree, as its trivial name implies, are all intensely bitter; and it is observed, that the leaves, flowers, and other parts of the plant, possess similar qualities.

**MEDICAL PROPERTIES AND USES.**—Those are the same, in a superior degree, as the species hereafter described.







*Rhododendron chrysanthum.*



## RHODODENDRON CHRYSANTHUM.

*Golden-flowered Rhododendron.**Class X. DECANDRIA.—Order I. MONOGYNIA.**Nat. Ord. BICORNES, Lin. RHODODENDRA, Juss.*

GEN. CHAR. *Calyx* 5-parted. *Corolla* nearly funnel-shaped. *Stamens* declined. *Capsule* 5-celled.

SPEC. CHAR. *Stem* decumbent. *Leaves* ovate, reticulated, rugged above; paler or ferruginous, and smooth beneath. *Umbels* terminal. *Corolla* irregular, nearly wheel-shaped.

SYN.—*Andromeda foliis ovatis*, Gmel. *Flor. Sib.* v. 4. p. 121. t. 54.

*Rhododendron officinale*, Salsb. *Prodr.* t. 80.

*Rhododendron chrysanthum*, Willd. v. 2. 603; *Woodv.* v. 3. 403. t. 149;

*Stokes*, v. 2. 504; *Pallas. Fl. Ross. tom. i. pars. 1. p. 44. t. 30.*

FOREIGN.—*Rosage*, Fr.; *Rhododendro aureo*, It.; *Gichtrose*; *Gelber Alpbalsam*, Ger.; *Sabina*, Russ.

THIS beautiful shrub is a native of the mountains of Siberia, Kamtschatka, and Beering's Island; flowering in June and July, and ripening its pods in September. It was introduced by Mr. Joseph Bush, in 1796, into our gardens, where it flowers, though rarely, in the middle of summer. In its native climes, it grows not only on the mountain tops, but on the banks of rivers.

The stem in alpine situations seldom exceeds a foot in height; in lower ground it grows to a foot and a half, sending off numerous decumbent spreading branches, having their ends emerging from the moss, and which are covered with a brown bark. The leaves are terminal, few, ovate, oblong, of a coriaceous texture, and attenuated to the footstalk; the upper ones reticulated, rugged, and of a deep green colour; the under pale or sub-

ferruginous, very smooth, having the margin entire and bent inward. The flowers are large, yellow, and placed alternately at the ends of the branches on very long peduncles, forming an umbel. They are usually six or fewer, but sometimes about ten, erect and hairy. The calyx is inferior, persistent, and divided into five deep teeth; the corolla is monopetalous nearly wheel-shaped, and divided into five rounded, nearly equal, spreading segments; the three upper ones being only a little larger than the other two, striated towards the tube with livid dots; the lower ones unspotted. The stamens are ten, equal, thread-shaped, declining, with incumbent oblong anthers. The germen is pentagonal, bearing a long slender style, and terminated by a 5-lobed stigma. The capsule is ovate, somewhat angular, slightly curved, subtomentose, and divided into five or ten cells, which contain many small, gray, irregular seeds, like saw-dust. Figs. (*a* and *b*) represent the capsule and its valves; (*c*) a section of the same to show the cells.

Professor Pallas was the discoverer of this plant during his tour through Siberia; and from his splendid work (*Flora Rossica*) we have taken our characteristic figure. The inhabitants of Siberia call the shrub *Schéi*, or tea; drinking a weak infusion of it as a refreshing beverage, in the same way as we do that of the Chinese plant.

It appears from Pallas' account, that the Cossacks gather its leaves in September, when the capsules are ripe; but it is then less bitter than when in flower, and the whole plant is more flourishing; at which time, he recommends it to be obtained for medicinal use.

**QUALITIES.**—The leaves possess a smell, when fresh, of a rhubarb cast; when dried they are inodorous, but have an austere, bitterish taste, somewhat resembling our common oak-leaf. The decoction has a disagreeable smell, and a rough, bitter, acrid taste.

**MEDICAL PROPERTIES AND USES.**—This plant was first used as a narcotic application for hæmorrhoidal fluxes; but it was not till Gmelin and Steller had lauded its virtues, that it excited the notice of the medical world. It appears that the



Siberians, on the banks of the river Lena, when overcome by fatigue and cold, apply a decoction of its leaves to their limbs, to relieve pain and induce sleep. They also exhibit it for rheumatic and other painful affections of the muscles and joints, in the following manner: they take about two drachms of the dried shrub, stalks, and leaves, which, with nine or ten ounces of boiling water, they put into an earthen pot; lute on the head, and place it in an oven during the night. This infusion, *for it is not allowed to boil*, is drank the next morning for a dose. It occasions heat, together with a degree of intoxication, resembling the effects of spirituous liquors, and a singular kind of uneasy sensation in the parts affected, accompanied by creeping sensations, which are likewise confined to the diseased parts. The patient is not permitted to quench the thirst which the medicine occasions; as fluids, particularly cold water, produce vomiting, whereby the power of the specific is lessened. In a few hours, all disagreeable effects disappear, commonly with two or three alvine evacuations. The patient then finds himself greatly relieved of his disorder, and has seldom occasion to repeat the medicine above two or three times to complete a cure.

From experiments which have been instituted in this country, the yellow Rhododendron appears to exert a stimulant, and diaphoretic effect; and, as far as our experience goes, it supports the correctness of Dr. Home's remarks, who states that it has a power on the heart, whereby arterial action is often much diminished. Pallas relates in his travels, that it is a common and successful remedy, among some of the Tartar tribes in gout, and other painful disorders. They drink till it brings on some degree of vertigo, and symptoms of intoxication, which effects are generally accompanied by a tingling sensation in the parts affected, and an abatement of pain. These effects were also noticed by Kœlpin, a friend of Professor Pallas, who not only speaks of its efficacy on himself, but in a tract, written in German and published at Berlin, extols it not only for its virtues in relieving gout and rheumatism, but for its valuable powers over that painful affection of the bones, known as venereal rheumatism.

Sometimes it excites head-ach, nausea, vomiting, delirium, and other unpleasant symptoms. Capriolus, a companion of Steller, having eaten ten leaves, soon after began to stagger, toss his head about, and to reel. After a short time, he fell on his knees, in vain attempting to rise ; and, although milk was copiously administered to him, he became overcome with sleep for an hour and a quarter, during which time he started continually, and appeared terrified. When he awoke he appeared as cheerful as before, and it failed afterwards to produce the same effects. After this, the servants of Steller were constantly taking small quantities of it, on account of its pleasant intoxicating effects.\*

When we administer it, we put half an ounce of its leaves in twelve ounces of water, and allow them to *simmer only*, for four hours. Of the strained liquor, a quarter may be given to an adult every four hours ; who, during its administration must remain in bed, and its effects should be closely watched. The leaves of a different species, probably the *R. caucasicum*, have been, for several years, sold by druggists for this plant ; but Mr. Butler, of Covent Garden, has obtained a considerable quantity from Siberia ; and in those constitutions with which colchicum disagrees, we venture to recommend it as a very efficacious remedy.

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\* Pallas, Flora Rossica. fol. 45.







*Pyrola umbellata*

*Chymaphylla corymbosa*

Weddell fecit

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PYROLA UMBELLATA.

*Umbel-flowered Winter-green.*

Class X. DECANDRIA. Order I. MONOGYNIA.

Nat. Ord. BICORNES, *Lin.* ERICEÆ, *Juss.*

GEN. CHAR. *Calyx* in 5-deep segments. *Petals* 5. *Capsules* superior, 5-celled, bursting at the angles. *Anthers* opening by two tubular pores.

SPEC. CHAR. *Leaves* wedge-shaped, lanceolate, serrated. *Flowers* somewhat umbellate. *Stamens* smooth. *Style* immersed.

Syn.—*Pyrola fruticans arbuti folio*, *C. Bauh. Pin.* 191; *Tournef. Inst.* 256; *Moris Hist.* 3. sect. 12. t. 10. f. 5.

*Pyrola folio arbuti*, *Riv. Pent. t.* 139. f. 2.

*Pyrola* 3 *fruticans*. *Clus. Stirp. Pann.* 507. *Hist. p.* 117.

*Chimaphila corymbosa*, *Pursh Amer. Sept.* 1. p. 300.

*Chimaphila umbellata*, *Bart. Veg. Mat. Med. U. S. v.* 1. t. 1. 17. *Bot. Mag. t.* 778.

*Chimaza umbellata*, *Brown in Herb. Banks.*

*Pyrola umbellata*, *Lin. Sp. Pl.* 568; *Willd.* 2. p. 622; *Pollich. Palat. n.* 389; *Hoffm. Germ.* 144; *Krocker Siles.* 2. p. 14; *Roth. Germ.* 1. 151. v. 2. 464; *Mich. Amer.* 1. p. 251; *Lam. Encycl.* 5. p. 744; *Persoon Synop.* 1. 483.

FOREIGN.—*Pyrole*, *Verdure d'hiver*, Fr.; *Pirola*, It.; *Das doldenformige Wintergrün*, Ger.; *Vintergrönae*, Rylort, Swed.; *Borowaja trawa*, Rus.

FIVE species of this very natural genus are indigenous to Great Britain. The *Pyrola umbellata*, has received a place in our national pharmacopœias; probably on account of the high eulogiums which have lately been bestowed upon it as a powerful tonic and diuretic: and although widely diffused throughout

the northern hemisphere, is not found wild in this country. It inhabits every part of the United States, and extends across the continent to the shores of the Pacific Ocean. It is also found in the forests of Siberia, and in several of the northern parts of Europe and Asia. It delights only in shady woods, particularly of pine and birch, where it is protected from the rays of the sun, and nourished by the soil formed from the decomposition of leaves and other vegetable matter. The common appellations by which it is known in America are *Winter Green*, *Ground Holly*, *Rheumatism Weed*, and *Pippissewa*: it is called *Herbe de Paigne* by the Indians, and *L'Herbe a Pisse* by the Canadians. It is the most beautiful of all the genus; producing its elegant umbells of cream-coloured flowers in June and July, and continues a long time in bloom.

Michaux, Pursh, and some other botanists, have separated this and another species (*maculata*) from *Pyrola*, in order to constitute a distinct genus, to which they have given the name of *Chimaphila*. The former writer remarks, that these two species differ from the others in habit, in having a sessile, undivided stigma, and short-beaked anthers, with a sub-bivalve foramen. Upon these characters Pursh has attempted to establish the genus; but Retzius long ago observed the diversity of the style, which is different in almost every species, "and affords admirable specific, but no generic distinctions."

The genus *Pyrola*, as now constituted, comprises about 15 species, principally inhabiting northern countries, both in the new and old world. "In the temperate Zones," says Mr. Don, "they are chiefly met with in mountainous situations; some of the species, such as *uniflora* and *secunda*, extending to considerable elevations. In the frigid Zones, on the contrary, they are only to be found in the lowest and narrowest plains adjacent to the sea, and are never met with in these regions beyond the limit of trees. Most of the species extend across the continents of Asia, Europe, and America. There are specimens of *secunda* and *uniflora* in the Banksian Herbarium, from the islands on the north-west coast of America. The *P. picta* of SMITH is found on the north-west coast of America, and in mountainous situa-



tions in Japan. Some species, however, are of more limited diffusion; thus, *P. asarifolia*, *maculata*, and *elliptica*, have only been found in North America. The *P. dentata*, *Menziesii*, and *occidentalis*, are still more confined, being only found in particular districts.”\* All the species are herbaceous, or somewhat woody, astringent and tonic.

Like most others of this genus, the *Pyrola umbellata* has a long creeping perennial root, sending up woody, somewhat angular, erect, or slightly procumbent stems, at various distances, a span high. The leaves grow in irregular whorls, of which there are generally two or three on each stem. They are lanceolate, wedge-shaped, strongly serrated, smooth, placed on short petioles, and of a deep shining green colour. The flowers, which are usually five, grow in a small corymb, on simple, nodding pedicels: the calyx is inferior, and consists of five roundish, permanent segments, much shorter than the corolla: the petals are five, roundish, concave, spreading, cream-coloured, with a tinge of crimson at the base: the filaments are ten, awl-shaped, curved, supporting large, 2-celled purple anthers; each cell opening by a short, round, tubular orifice at the summit: the germen is roundish, depressed, furrowed, obscurely 5-lobed; the style cylindrical, half as long as the germen, and concealed by the stigma, which is large, peltate, covered with a viscid matter, and obscurely 5-rayed. The capsules are orbicular, depressed, with 5 valves, 5 cells, and 5 partitions from the central column. The seeds are very minute, oval, each contained in a membranous tunic, elongated at both ends.—Fig. (a) the anthers separated; (b) a seed—from Lamarck.

QUALITIES AND CHEMICAL PROPERTIES.—The whole plant, when bruised, has a strong unpleasant odour, and a moderately warm pungent taste, partaking of both sweet and bitter. Alcohol appears to be the best menstruum for extracting the active properties of the plant, although water is capable of extracting the greater part of its virtues. The decoction is of a deep brown, and strikes a black colour with the sulphate of iron.

A Dissertation ‘*De Pyrola umbellata*,’ published at Göttin-

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\* See a Monograph of the Genus PYROLA, in the *Memoirs of the Wernerian Natural History Society*, by Mr. D. Don, Lib. Lin. Soc.

gen, by Dr. Wolf, in 1817, contains an elaborate chemical examination of this plant. As the result of his trials, this author concludes, that 100 parts of *Pyrola umbellata* contain about 18 of a bitter extractive principle, 2.04 of resin, 1.38 of tannin, a slight portion of gum, and the rest fibrous matter and earthy salts. The resin is adhesive, brownish, readily soluble in ether and alkalis, burning with flame and a resinous odour, and leaving a white cinder.

**MEDICAL PROPERTIES AND USES.**—As we have no experience ourselves of the medical properties of this plant, we think that our readers will thank us for furnishing them with the opinions of Dr. Bigelow, Professor of Materia Medica, and Botany, in Harvard University, United States: The *Pyrola umbellata* though scarcely known as a medicine until within the last few years, has at the present day acquired a reputation of considerable extent in the treatment of various diseases. Its popular celebrity seems to have originated in its application to the treatment of fever and rheumatism; but the attention of physicians has been chiefly drawn towards its use in other complaints. The instances in which this plant has received favourable testimonies on medical authority, of its successful use, both in America and Europe, are principally the following. 1. As a palliative in strangury and nephritis. 2. As a diuretic in dropsy. 3. As an external stimulant, susceptible of useful application to various cases.

“ In the first of these cases, the *Pyrola* is entitled to attention and confidence. Some practitioners in this country have employed it with advantage in the same cases in which the *Arbutus Uva ursi* is recommended.\* Dr. Wolf, the German writer, lately cited, has reported a number of cases of ischuria and dysuria, arising from various causes, in which the *Pyrola*, given in infusion, produced the most evident relief, and took precedence of a variety of remedies which had been tried. His method of administering it was to give a table spoonful of a strong infusion, with a little syrup, every hour. In all the cases he has detailed, small as the dose was, it gave relief in a very short time. In one case its effect was so distinctly marked, that the disease returned whenever the medicine was omitted, and was removed on resuming its use. A tonic operation attended its other effects, so that the appetite was improved, and digestion promoted during the period of its employment.

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\* See Dr. Mitchell's Inaugural Dissertation. Philadelphia, 1803.



“ The diuretic properties of the *Pyrola umbellata*, seem to have been fully illustrated by Dr. W. Somerville in a paper on this vegetable, published in the 5th volume of the London Medico-Chirurgical Transactions. The facts presented by this physician afford satisfactory evidence of the power of this medicine to promote the renal excretion, and to afford relief to patients afflicted with dropsy in its various forms. The most distinguished case presented by him, is that of Sir James Craig, the British governor in Canada, who was labouring under a general dropsy, which in its progress had assumed the forms of hydrothorax, anasarca and ascites, and which was combined with different organic diseases, especially of the liver. After having tried with little or temporary success, almost every variety of diuretic and cathartic medicines, and submitted twice to the operation of tapping, the patient had recourse to a strong infusion of the *Pyrola*, in the quantity of a pint every twenty-four hours. Although the case was altogether an unpromising one, yet the plant gave relief, not only in the first, but in the subsequent instances of its use. It increased the urinal discharge, and at the same time produced an augmentation of strength, and an invigorated appetite.

“ Several other cases of dropsy are detailed in Dr. Somerville’s paper, in which the *Pyrola* was administered by himself and by other practitioners with decided advantage. Dr. Satterly and Dr. Marcet are among those who have added their observations to the testimonies in its favour. Dr. Somerville found his patients to remark, that an agreeable sensation was perceived in the stomach soon after taking the *Pyrola*, and that this was followed in some instances by an extraordinary increase of appetite. He considers it as having in this respect a great advantage over other diuretics, none of which are agreeable to the stomach, and most of them very offensive to it. He further states, that no circumstance had occurred within his own experience or information, to forbid its use in any form, or to limit the dose.

“ Dr. Wolf has given one very satisfactory case of the utility of our plant in ascites. He also found it to alleviate altogether the ardor urinæ attendant on gonorrhea.

“ Such are the most important facts which to my knowledge have been published respecting the internal use of the *Pyrola umbellata*. I have administered this plant on various occasions, and attended to its mode of operation. In a number of dropsical cases, when first given, it made a distinct and evident impression on the disease, communicating an increased activity to the absorbents, followed by a great augmentation of the excretion from the kidneys. The benefit, however, with me has been in most instances temporary, and it was found better to omit the medicine for a time, and to resume it afresh, than to continue it until the system had become insensible to its stimulus. After suspending it for a week or two, the same distinct operation took place on returning to its use, as had been manifested in the first instance. It proved in almost every instance, a very acceptable medicine to the patient, and was preferred both for its sensible qualities and its effects on the stomach, to other diuretics and alteratives which had been prescribed.

“ The *Pyrola* has been considerably employed as an external application in tumors and ulcers of various descriptions. It first acquired

notice in consequence of some newspaper attestations of its efficacy in the cure of cancer. Those persons who know how seldom genuine cancers occur in comparison with reputed ones, will be more ready to allow it the character of curing ulcerous, than really cancerous affections. There are undoubtedly many ulcers, and those frequently of a malignant kind, which are benefited by antiseptic stimulants; and to such the Pyrola may be useful. But of its efficacy in real cancer we require more evidence than is at present possessed, before we ascribe to it the power of controlling so formidable a malady.

“ Dr. Miller, of Franklin, informs me that he has used a decoction and cataplasm of this plant with apparent success in various chronic indurated swellings. It acts as a topical stimulant, and when long continued, not unfrequently vesicates. Tumors of long standing have in several instances disappeared under its use.”

Sir Walter Farquar, it appears from Dr. Somerville's paper, had also used the *Pyrola umbellata* in the case of a lady labouring under ascites, in which case the diuretic effects were very striking. The same gentleman likewise states that “ the extract was prescribed in three hopeless cases of ascites, accompanied with unequivocal marks of organic visceral derangement; the patients were stimulated powerfully, and in the third the patient complained of sickness at the stomach, and did not persevere in taking the medicine.” Dr. Barton, author of “ the Vegetable Materia Medica of the United States,” also corroborates the accounts of the diuretic effects of this vegetable, by four cases which came under his care at the Marines' Hospital, Philadelphia, in which a strong infusion was given with the most decided advantage. It is said to be a practice in many parts of America to give a bucketfull of the decoction to horses that are unable to stale, with the view, and uniformly with the effect of relieving them.

As a tonic, the *Pyrola umbellata* has been employed in intermittents, scrofula, and other diseases, where this class of remedies are indicated. Dr. Mitchell, an American physician, relates some cases of its success in these fevers. In one of them, the urine, which was considerably increased in quantity, was of a dark brown colour. Dr. Heberden has recorded a case of a similar colour being produced by the uva ursi. The Indians use a strong and warm decoction of this plant in rheumatism and fever: They employ the whole plant, and the decoction is taken in large quantities. Professor Barton says, he has been assured on good authority, that it was very extensively employed, and with excellent effect in many cases of typhus fever, which under the appellation of “ camp-fever,” prevailed among the American troops, and carried off great numbers of them during the time of the revolutionary war.

Another species of the genus to which this plant belongs, the *Pyrola rotundifolia*, is said to be used by the Indians as a topical stimulant and vesicant.

The Dublin college directs the following method of preparing the decoction of Pyrola, as recommended by Dr. Somerville:

Pyrolæ umbellatæ ℥j.

Aquæ, mensura ℥ij.

Macerate for six hours, then bruise and return the Pyrola to the liquor, and reduce the mixture by evaporation, when strained and expressed to ℥ij by measure.—Dose ℥j. to ℥iij, three times a day.







*Arbutus Uva-Ursi?*

Weddell Fecit

Published by J Churchill Leicester Square Oct 1828.



## ARBUTUS UVA URSI.

*Trailing Arbutus, or Red Bear-berry.**Class X. DECANDRIA.—Order I. MONOGYNIA.**Nat. Ord. BICORNES, Lin. ERICÆ, Juss.*

GEN. CHAR. *Calyx* 5-parted. *Corolla* ovate, pellucid at the base. *Berry* superior, 5-celled.

SPEC. CHAR. *Stems* procumbent. *Leaves* entire, evergreen.

*Syn.*—*Vaccinia ursi*, sive *Uva ursi* apud Clusium, *Ger. Em.* 1416.

*Vaccinia rubra*, foliis myrtinis crispis, *Raii Syn.* 457; *Merr. Pin.* 123.

*Vitis Idæa*, foliis carnosis et veluti punctatis, *Bauh. Pin.* 470.

*Uva Ursi*, *Clus. Hist.* v. 1. 63. *f.*; *Lob. Obs.* 547. *f.*;  *Ic.* 366. *f.*

*Arbutus*, *n.* 1018; *Hall. Hist.* v. 1. 434.

*Arbutus Uva ursi*, *Sp. Pl. Willd.* v. 2. 618; *Fl. Brit.* 443; *Eng. Bot.* v. 10. t. 714; *Hook. Scot.* 126; *Woodv.* v. 1. t. 70; *Fl. Dan.* t. 33.

PROVINCIALY.—*Bear-berries*; *Bear Wortle-Berries*. *Braoileagna-na-con*, of the Scottish Highlanders.

FOREIGN.—*La bousserolle ou l'arbousier trainant*, vulg. *le Raisin d'ours*, Fr.; *Corbez-zolo uva d'orzo*, It.; *Uba d oso*; *ubaduz*, *gayuba*, *gayubera*, *ayauja*, *avujes*, Sp.; *Uva de orso*, Port.; *Die Bärentraube*, *die Bärenbeere*, *die Mehlbeere*-Ger.; *Meelbær-Rüs*, Dan.; *Mjölon*, Swed.; *Beerendruif*, Dut.; *Tolokn-janka*, Russ.

THIS pretty evergreen shrub is met with both in the old and new continents; for, in the northern parts of Europe, it abounds in Sweden, Lapland, and Iceland; is extensively diffused over Scotland and the north of England, and extends southerly to the shores of the Mediterranean. It is also found in Siberia, and is represented as abundant on the banks of the Wolga; while in North America it grows from Hudson's Bay, as far south as the central parts of the United States.

With us, it occurs only in dry, stony, subalpine moors, covering the ground with beds of considerable extent, at the height of 1,500 feet and upwards above the level of the sea. It is common throughout the Highlands, and western islands of Scotland, and

abounds at Dunkeld and Blair, the seats of the Duke of Athol, in Perthshire. It is the plant mentioned in Ray's Synopsis, p. 458, as found by Mr. Lhwyd, growing plentifully in the isle of Mull, at the end next Y-Columb-kill, for the space of several miles. It was perceived many years ago by Lightfoot, at the top of east common wood, about a mile from Hexham, in Northumberland; and is said by Mr. Winch to flourish on Cronkley Fell, and Blanchland in the same county, at an elevation of 200 to 2,000 feet.\*

The root is perennial, long, and fibrous; sending off several round, woody, branched, spreading, procumbent stems, covered with a smooth deciduous bark. The leaves are not unlike those of the Box, alternate, evergreen, obtuse, obovate, entire, attached by short stalks, coriaceous, smooth, convex, dark green, and wrinkled above; concave, finely reticulated and paler beneath, with the margin rounded, and in the young ones pubescent. The flowers which are produced in June, grow in small clusters at the extremities of the branches, each supported on a short red footstalk, and furnished with many acute coloured bracteas. They are usually five or six on each branch, drooping, and of a pale rose-red colour. The calyx is small, obtusely 5-toothed, and persistent. The corolla is ovate, smooth, transparent at the base, contracted at the mouth, with five short reflexed segments. The filaments are awl-shaped, downy, inserted at the base of the corolla, and crowned with reddish incumbent anthers, of two oval cells, opening by two terminal pores, and bearing a pair of short horns or spurs. The germen is roundish, bearing a cylindrical erect style, the length of the corolla; with a simple stigma. The fruit is a small, globular, smooth, depressed scarlet berry, containing a mealy pulp of an austere taste, and four or five angular seeds. Fig. (a) represents the calyx; (b) a flower cut open to show the stamens; (c) a stamen, with its anther; (d) the berries; (e) a berry divided transversely, to show the seeds.

The plants of this genus are very nearly allied to those of the

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\* See a paper on the Geography of Plants, in the *Annals of Philosophy*, May, 1818.



*Vaccinium*, or Wortle-berry, from which they differ principally in the situation of the berry, which in the *Arbutus* grows above the calyx ; and in the *Vaccinium* below it. The present species may be distinguished from the *Arbutus alpina*, or Black Bear-berry, by the figure of the leaves, which in the former are smooth, and entire, while in the latter they are rugged, and serrated.

QUALITIES AND CHEMICAL PROPERTIES.—The leaves of this plant, which are the parts used in medicine, are slightly bitter, and astringent to the taste. The result of Dr. Bigelow's chemical trials with them, shews that they abound in tannin. A solution occasioning a copious precipitate ; sulphate of iron an equally copious one of a black colour. Nitrate of mercury gives a precipitate of a light green colour : lime-water, of a brownish colour. The existence of gallic acid is somewhat problematical ; and the quantity of resin, mucous matter, and extractive, provided they reside in the plant, must be minute ; since the decoction is not rendered turbid by the addition of alcohol, or ether, nor the tincture by the addition of water. Muriate of tin produced no precipitation from the decoction, though it did from the tincture. Acetate of lead, and nitrate of silver, gave large precipitates. Water takes up a larger portion of soluble matter than alcohol, and may therefore be considered the best menstruum. Professor Murray, of Gottingen, prefers the decoction to the infusion for medical purposes.

MEDICAL PROPERTIES AND USES.—The *Arbutus Uva-ursi* is supposed by Clusius to be the *αρκτον σταφυλη* of Galen, celebrated by him as a remedy in hæmoptysis, and described as follows : “ *Uva-ursi in Ponto nascitur, planta humilis et fruticosa, folio Memæcyli, fructum ferens rubrum, rotundum, gustu austerum.*” But this description is too imperfect to satisfy us as to the identity of the plant.

As a diuretic, *Uva Ursi* has been much employed for calculous affections, especially when attended by purulent discharges. De Haen speaks very favourably of it in such cases ; and as it has a tendency rather to decrease arterial action, than to augment it, it may be exhibited in almost every state of the system, and in

nearly every variety of the diseases of the urinary organs. To its great efficacy in some of these affections, Ferrier gives his decided testimony. "I have," says he, "given this medicine in a considerable number of nephritic affections in very moderate doses, and always with manifest advantage. When the pain is very acute, and the pulse quick, I begin the cure with bleeding, and a gentle purgative composed of manna, and neutral salts. This purgative I repeat twice a week, and on the intermediate days, direct the patient to take five grains of the uva-ursi, and half a grain of opium, three or four times a day, according to the urgency of the symptoms. This method always relieves, and generally effects a cure. Of sixteen patients treated in this manner, I have discharged twelve cured. On reckoning the cures, I do not rest on the cessation of a single fit, but require a permanent relief from pain. Many of my patients have used this remedy for several months together, before this end was attained. The fits became slighter, and at length ceased."

Conjoined with soda it is an admirable remedy for catarrhus vesicæ and for strangury, arising from blisters. It is frequently resorted to for diabetes, and after the febrile symptoms which usually attend that disease, have been reduced by copious bleeding, purging, and other preliminary measures, the uva-ursi imparts tone to the stomach, and frequently mitigates this particular affection of the kidneys. It was at one time supposed to be useful in calculous cases, and experiments were instituted to ascertain whether it were not capable of dissolving stone in the bladder. The results most in favour of its solvent power, were those of Girardi, who diminished the weight and consistency of urinary calculi, by digesting them in a preparation of this plant. It appears, however, that the preparation which he employed was an acid liquor, obtained by a destructive distillation of the leaves, and probably not superior to other weak acids in its solvent powers. On the other hand, Professor Murray found, what might reasonably be expected, that these calculi were not materially affected by long digestion in a decoction of this plant, at various temperatures. Professor Barton found the plant of great



service in his own case of nephritic paroxysms, alternating with gout in the feet : and in those which were brought on by gravelly concretions, the uva-ursi appeared to Professor Bigelow, to allay irritability, and to hasten the relief of the symptoms.

It was in consequence of its apparent virtue in counteracting a protracted disease of the urinary passages, attended with emaciation, and all the characteristics of hectic fever, that Dr. Bourne, of Oxford, was induced to make trial of its efficacy in phthisis pulmonalis, and other affections rendered in some measure analogous to genuine pulmonary consumption, by the decided existence of hectic irritation. After a recital of the case above alluded to, Dr. Bourne, in the work alluded to, minutely details the symptoms, and method of treatment in sixteen separate cases, which are arranged under four general heads. The first eight are supposed to be instances of “ true pulmonary consumption in its first stage ;” the ninth, tenth, and eleventh of this disorder in a confirmed state, attended with purulent expectoration ; the two succeeding, some affections of the lungs attended with expectoration of pus, but which, nevertheless, were not genuine phthisis ; and the three last were cases of hectic, in which the lungs appeared not to be primarily affected, or not at all. In the majority, however, of the above cases, the uva-ursi was not had recourse to without auxiliary combinations, and in some instances its employment was for a time entirely suspended. In the cases which are recited in the Appendix, the medicine appears to have received a fairer trial, and to have been attended with more decided effects. Extreme candour and moderation pervade the pages of Dr. Bourne’s work ; and although our own experience of Uva Ursi in pulmonary affections does not authorize an opinion independently of that formed by a perusal of this book, Mr. Davie, of Framlingham, Suffolk, has given cases of its decidedly curative powers ; and there can be little doubt of its being capable of allaying irritability of system ; for, according to experiments instituted on the pulse by Dr. Mitchell, of Philadelphia, the pulsations were sometimes, not always, slightly increased after taking

it, but in every case they soon sunk below the natural standard, and remained so for some time.

Of the powder of the leaves of *Uva-ursi*, from one to two scruples may be given to most patients ; and of a decoction, made from half an ounce of the leaves, boiled for ten minutes in a pint of water, a wine-glass-full may be taken every hour.







*Styrax officinale.*

W. Clark del. et sculp.

London. Published by John Churchill, Leicester Square. Decr 1827.



STYRAX OFFICINALE.

*The Officinal Storax-tree.*

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Class X. DECANDRIA.—Order I. MONOGYNIA.

Nat. Ord. BICORNES, *Lin.* GUACIANÆ, *Juss.*

GEN. CHAR. *Calyx* inferior, pitcher-shaped. *Corolla* funnel-shaped. *Stigma* simple. *Drupe* coriaceous, 2-seeded.

SPEC. CHAR. *Leaves* ovate, bluntish, entire; downy beneath. *Clusters* simple of few flowers.

*Syn.*—*Styrax*, folio mali Cotonei, *Bauh. Pin.* 452; *Tourn. Inst.* 598; *Ger. Em.* 1526.

*Styrax*, *Matth. Valgr. v.* 1. 80; *Camer Epit.* 80; *Lob. Ic. v.* 2. 151.

Στυράξ *Diosc. lib.* 1. cap. 79.

Στουράκυ, η λαγομηλιά, *hodie.*

*Styrax Officinale*, *Lin. Sp. Pl.* 635; *Willd. v.* 2. 623; *Ait. Hort. Kew. ed.* 2. v. 3. 59; *Sibth. Fl. Grec. t.* 375; *Woodv. v.* 1. t. 71; *Stokes Bot. Mat. Med. v.* 2. 516.

FOREIGN.—*Storax*, *Fr.*; *Storax*, *Ger. Dan. Swed.*; *Storace*, *It.*; *Storaque*, *Port.*; *Azumbar*, *Sp.*; *Styraxboom*, *Dut.*

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THIS tree, or shrub, is chiefly remarkable for producing the very powerful and fragrant balsam, called storax. It is a native of Syria, and the Levant; and is not uncommon all over Greece and the Peloponnesus, being known by the name of λαγομηλιά, in modern Greek. Dr. Sibthorp found it called σουράκι, a slight alteration of its original appellation. The shrub is naturalized in hedges in some parts of Italy, particularly about Tivoli, and was cultivated in England by Gerarde, before the year 1597. It is rarely met with in our gardens; but a very large tree is trained against a wall in the Botanic

Garden at Chelsea, and regularly clothed with a profusion of its white blossoms every year, in May or June. This tree, Sir James Smith informs us, is the finest he ever beheld; and we are obliged for the specimen, from which our figure was taken, to Mr. William Anderson, F.L.S. an eminent practical botanist and gardener.

The Storax-tree is of a middling size, seldom exceeding fifteen or twenty feet in height, with irregular, alternate, round, leafy branches, downy when young. The leaves are deciduous, elliptical, entire, somewhat pointed, and well compared by the old botanists to those of a quince; they are alternate, petiolate, smooth, of a fine green colour on the upper surface, and covered with hoary stellated down underneath. The flowers are in clusters terminating the young lateral shoots, containing from two to five, or six white flowers each. The calyx, as well as the corolla is white and downy; the corolla is monopetalous, funnel-shaped, and divided at the limb into five deep, elliptical, oblong, obtuse, spreading segments: the filaments are ten, placed in a ring, awl-shaped, and inserted into the corolla; the anthers are yellow, erect, and oblong; the germen is oval, with a slender style and simple stigma. The fruit is a drupe of a globular form, containing one or two angular nuts, convex on one side and concave on the other. Fig. (a) represents the germen and pistil; (b) the stamens and anthers with the corolla removed; (c) the fruit.

**QUALITIES AND CHEMICAL PROPERTIES.**—The best Storax comes only from Asiatic Turkey, and is obtained in a fluid state, from incisions made in the bark of the trunk, or branches of the Storax-tree. It is brought from Turkey, but is so adulterated, that it is very rarely met with in a pure state. Storax is bitter and pungent to the taste, and has a strong fragrant odour. Two sorts of this balsam are found in the market: Storax in the tear, and common Storax in larger masses. This has been called “storax in the lump,” “red storax,” and the separate tears, “storax in the tear.” The former is very rarely in separate tears, but in masses, composed of white and pale reddish tears, or having a uniform reddish yellow, or brownish appearance; being unctious to the touch; soft like wax; and free



from visible impurities. This is the *Στύραξ καλαμίτης*, of the ancient Greeks. According to Galen, it was formerly brought from Pamphylia, in hollow canes or reeds; whence it was called *Styrax calumita*. It is preferred to the common storax, in larger masses, which are lighter; less compact than the preceding; and have a large admixture of woody matter, like saw-dust. Although the impurities of this kind of Storax render it less valuable than the other, it is not less useful, and when purified, its medical qualities are no less potent. Storax should be chosen of a reddish brown colour; rather softish; unctuous to the touch, yet brittle and friable; and of a pleasant, sweet smell. From its yeilding a pleasant odour of benzoic acid, when ignited, it is much used in Roman Catholic countries for incense.\* Spirit dissolves it entirely; it consists principally of resin, with a small portion of benzoic acid. The directions in the London Pharmacopœia for purifying Storax, are: “Dissolve BALSAM OF STORAX in rectified spirit, and strain it; then distil off the spirit by a gentle heat, until the balsam acquire a proper consistence.” The Dublin College adopt a plan which is practised abroad; but it is somewhat objectionable, in consequence of an evolution of benzoic acid being produced by the heat of the iron plates.

It may not be improper here to observe, that the Storax of the Pharmacopœia ought not to be confounded with the Storax, or Liquidambar of commerce, which is a *liquid* balsam, said to be obtained from the Liquidambar *styraciflua*, a tree which grows in Virginia and Mexico, and has lately been naturalized in our own country. It is prepared, according to Petiver, in the island of Colross in the Red Sea, from the bark of a tree called *rosa mallos* by the natives, and considered by botanists the same as the American species. The bark of this tree is boiled in salt water to the consistence of bird-lime, and then put into casks.

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\* The following is an excellent form for *fumigating pastiles*;—

Take of Charcoal eight ounces.

Gum-storax,

—— Mastich,

—— Benzoin, of each one ounce.

—— Copal half an ounce.

The whole must be finely powered, and made into a proper consistence, by starch mucilage; after which the pastiles are properly formed.

Its colour is greenish ; it has an aromatic taste, and an agreeable smell. That which is met with in the shops under this name, is of a weak smell, and a grey colour, and is supposed to be an artificial composition. Liquid storax was formerly used in external compositions, but is now entirely neglected.

\* MEDICAL PROPERTIES AND USES.—Storax is stimulant and expectorant, and was formerly prescribed for asthma, and chronic affections of the wind-pipe ; for amenorrhœa, &c. It is so far discarded from practice, that we never remember it to have been prescribed, and is justly designated by Dr. Richard Pearson, as a useless article in the list of the *materia medica*.

OFF. PREP.—Tinct. Benzoini Composita. *L.*

Styrax purificata. *D.*

Pilulæ e Styrace. *D.*

In the latter preparation, Storax appears to be added to opium, not on account of its virtue, but rather to disguise the administration of that powerful substance from patients, who are sometimes exceedingly prejudiced against it. “ Even the name of opium,” remarks Dr. John Murray, “ requires to be concealed in a prescription ;” and hence the reason of the names (*Pilulæ Saponis cum Opio*, and *Pilulæ e Styrace*) given by the London and Dublin Colleges, being derived from the trivial ingredients.

It is remarked, in a very useful little work,\* that four Balsams appear in the *Pharmacopœia*, which are denominated,

Benzoinum.

Balsamum Styracis.

Balsamum Peruvianum,

Balsamum Tolutanum.

In these names we find a singular want of uniformity, a defect which certainly ought not to exist in a work, the nomenclature of which has been so often changed on systematic principles—thus, in the first of these names, we have a *simple term* ; in the second a *generic*, and a *specific noun* ; in the third and fourth, a *generic noun*, and *specific adjective*. Two years after these observations were published, a revised edition of the *Pharmacopœia* appeared, but no notice is taken of these glaring inconsistencies.

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\* *Medicamina Officinalia, seu Pharmacopœiæ Londinensis, Index Methodicus* Cura F.A. Macann, M. D.







*Styrax Benzoin.*



## STYRAX BENZOIN.

*Benzoin Storax, or Benjamin-Tree.*

SPEC. CHAR. *Leaves* ovate, pointed, entire; downy beneath. *Clusters* axillary, compound.

Syn.—Arbor Benzoini, Grimm in *Eph. Acad. Nat. Curios.* dec. 2. ann. 1. 370.

Benjui, Garcias ab Horto in *Clus. Exot.* p. 155; *Sylv. in Valent. Hist. Simpl.* p. 487.

Benzuin, Radermacher in *Act. Societ. Batav.* v. 3. p. 44.

Benjamin, or Benzoin, Marden *Hist. of Sumatra*, p. 123.

Laurus Benzoin, Houttwyn in *Act. Harlem*, v. 21. p. 265.

Styrax Benzoin, Dryander in *Phil. Trans.* v. 77. 308. t. 12; *Willd.* n. 2; *Woodv.* t. 72.

FOREIGN.—Benzoin, Fr.; Belzuino, It.; Benjui, Sp.; Benzoe, Ger.; Lubán, Hind. and Arab.

THOUGH Garcias ab Horto, Grimm, and Sylvius, were acquainted with the real tree from which the resinous substance called Benzoin is collected, its botanical character was entirely unknown to modern authors till about the year 1787, when Mr. Dryander fully ascertained it to be a Styrax. This was done at the request of the late Sir Joseph Banks, who obtained proper specimen of the tree from Mr. Marsden at Sumatra, where it is a native. Ray had erroneously supposed it to be the production of a North American shrub, thence called *Laurus Benzoin*. The latter, in correcting this error, fell into a no less mistake, making the Benjamin-tree a Croton, in *Mant.* 2.294, and a *Terminalia* in the Supplement 434. To this he is supposed to have been led by the French name of this Croton or *Terminalia*, (*Bien-joint*, but he gives a better reason in justification of himself in the *Supplementum*, where he informs us that a piece of the true *Benzoe*, brought by Thunberg, very closely agreed, in its singular bark, with the tree before him, which grew in the stove at Upsal.

The Benzoin *Styrax* is of quick growth, and rises to a considerable height; it sends off many strong, round branches, which are covered with a finely downy and hoary bark. The leaves are about four inches long and two broad, alternate, on short footstalks, quite entire, pointed, oblong, elegantly reticulated with triply compound prominent veins, smooth on the upper surface, and clothed beneath with a fine dense hoary down. The flowers are in compound axillary clusters, seldom so long as the leaves, alternately branched, with angular downy stalks, and a few small, oblong, concave, more downy, deciduous bracteas. The flowers are from six to twelve in one cluster, smaller than those of *Styrax officinale*, and usually hang all upon the same side. The calyx is bell-shaped, downy, with very minute teeth; the corolla consists of five linear obtuse petals, four times longer than the calyx, connected together at the base, externally cineritious, and somewhat silky rather than downy. The filaments are ten, shorter than the petals, inserted into the receptacles connected at the base into a tube almost as long as the calyx, and crowned with linear erect anthers. The germen is superior, ovate, and tomentose, with a slender style, and simple stigma. The fruit is similar to that of *Styrax officinale*.—Fig. (a) corolla; (b) anthers; (c) calyx, germen, and style.

In some of the northern parts of Sumatra, particularly near the sea coast, there are several extensive plantations of these trees. The fruit being sown in the rice fields, spring up, and the young plants require only that the surrounding shrubs should be cleared away from them. When the trees have attained the age of six or seven years, incisions are made in the bark, from which the balsam exudes in the form of a thick, whitish, resinous juice. By exposure to the air, this juice soon hardens; it is then pared from the bark with a knife or chisel. For the first three years the trees yield the purest resin: this is of a white colour, inclining to yellow, is soft and fragrant. Afterwards, for the next seven or eight years, an inferior sort is yielded; this is of a reddish yellow colour, degenerating to brown. At length the trees, unable to bear a repetition of the process, are cut down, and split into pieces. From these is pro-



cured, by scraping, a still worse sort of benzoin, which is dark-coloured, hard, and mixed more or less with parings of the wood and other impurities.

The inferior sorts of benzoin are exported to Arabia, Persia, and some parts of India, where they are burned, to perfume, with their smoke, the temples and houses of the inhabitants; to expel troublesome insects, and obviate the pernicious effects of unwholesome air or noxious exhalations.

Benzoin is brought for sale to the mercantile parts of Sumatra, in large cakes, covered with mats. In order to pack it in chests, it is necessary to break these cakes, and to expose the benzoin to the heat of the sun. The greater part which is brought to England is re-exported to countries where the Roman Catholic and Mahomedan heresies prevail; to be there burned in the churches and temples. The annual exportation of benzoin from London to Magadore only has been estimated at 30,000 pounds weight per annum.

“CHEMICAL PROPERTIES.—Only three solid balsams are at present known; viz. *Storax*, *Dragon's blood*, and *Benzoin*. *Benzoin* has a very agreeable odour, which is increased by heat. It has little taste. Its specific gravity is 1.092. This substance has been used in medicine for ages, and various processes have been pointed out by chemists for extracting benzoic acid from it: but the only person who has examined its properties in detail is Mr. Brande.

“Cold water has very little effect on benzoin, but boiling water takes up a portion of benzoic acid.

“Alcohol dissolves it when assisted by a gentle heat, and forms a deep yellow solution inclining to reddish-brown. When this solution is diluted with water, the benzoin precipitates in the form of a white powder. It is precipitated also by muriatic and acetic acids, but not by the alkalies. A few drops of sulphuric acid likewise precipitate the benzoin; but an additional quantity redissolves it, and forms a liquid of the colour of port wine. When equal quantities of the alcoholic solution of benzoin and sulphuric acid are mixed, a dark-pink precipitate falls. The liquid assumes a pink colour, which becomes lilac when diluted with water. Nitric acid occasions a strong effervescence, and forms a dark-red fluid with the alcoholic solution, but throws down no precipitate.

“Ether dissolves benzoin with facility, and the solution with reagents exhibits the same phenomena as the alcoholic.

“Nitric acid acts with violence on benzoin, and converts it into an orange coloured mass. When assisted by heat the acid dissolves the benzoin; and as the solution cools, crystals of benzoic acid gradually separate. Mr. Hatchett ascertained that by this process a quantity of artificial tannin is formed.



“ Sulphuric acid dissolves benzoin, while benzoic acid as Hatchett discovered, sublimes; the solution is at first a deep red. By continuing the digestion, a portion of artificial tannin is formed, and the charcoal evolved amounts to 0.48 of the benzoin dissolved.

“ Acetic acid dissolves benzoin without the assistance of heat. When heat is applied, the solution, as it cools, becomes turbid, owing to the separation of benzoic acid.

“ Benzoin is dissolved by a boiling lixivium of the fixed alkalies; a dark-brown solution is formed, which becomes turbid after some days' exposure to the air. Ammonia likewise dissolves benzoin sparingly.

“ When Mr. Brande exposed 100 grains of benzoin in a retort to a heat gradually raised to redness, the products were,

Benzoic acid . . . . .	9.0
Acidulous water . . . . .	5.5
Butyraceous and empyreumatic oil . . . . .	60.0
Charcoal . . . . .	22.0
Carburetted hydrogen and carbonic acid . . . . .	3.5

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100.0

“ Bucholz subjected 1500 grains of benzoin to a chemical analysis. He obtained the following substances:

Resin . . . . .	1250
Benzoic acid . . . . .	187
Substance similar to balsam of Peru . . . . .	25
Aromatic substance soluble in water and alcohol . . . . .	8
Woody fibres and impurities . . . . .	30

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1500

“ *Benzoic acid*.—This substance was described as long ago as 1608, by Blaise de Vigenere, in his Treatise on fire and salt, under a name by which it is familiarly known, viz. *Flowers of Benzoin* or *Benjamin*.

“ The usual method of obtaining this acid is to put a quantity of benzoin, coarsely powdered, into an earthen pot, to cover the mouth of the pot with a cone of thick paper, and then to apply a very moderate sand heat. The benzoic acid is sublimed, and attaches itself to the paper. This method was tedious and difficult; it being hardly possible to prevent the heat from scorching the benzoin, and volatilizing some empyreumatic oil, which soils and injures the acid sublimed. Neuman proposed moistening the benzoin with alcohol, and distilling it in a retort with a slow heat. The acid comes over immediately after the alcohol, partly in crystals, and partly of the consistence of butter. Geoffroy ascertained, in 1738, that this acid may be obtained by digesting benzoin in hot water. A portion is taken up, which is deposited in crystals as the water cools. Scheele published a different method in 1775; which being easier and more productive than any of the preceding, is now preferred. This process is as follows: Upon four parts of unslacked lime pour twelve parts of water, and after the ebullition is over add 96 parts more of water; then put twelve parts of finely pounded benzoin into a tinned pan; pour upon it first, about six parts of the above milk of lime, mix them well together, and thus

successively add the rest of the mixture of lime and water. If it be poured in all at once, the benzoin, instead of mixing with it, will coagulate, and run together into a mass. This mixture ought to be boiled over a gentle fire for half an hour with constant agitation; then take it from the fire, let it stand quiet for an hour, in order that it may settle; pour off the supernatant limpid liquor into a glass vessel. Upon the remainder in the pan pour 96 parts of pure water; boil them together for half an hour, then take it from the fire, and let it settle; add the supernatant liquor to the former; pour upon the residuum some more water, boil it as aforesaid, and repeat the same process once more. At last put all the residuums upon a filtre, and pour hot water several times upon them. During this process, the calcareous earth combines with the acid of benzoin, and separates it from the resinous particles of this substance. A small quantity of the resin is dissolved by the lime-water, whence it acquires a yellow colour. All these clear yellow leys and decoctions are to be mixed together, and boiled down to twenty-four parts, which are then to be strained into another glass vessel.

“ After they are grown cold, muriatic acid is to be added, with constant stirring, till there be no farther precipitation, or till the mass taste a little sourish. The benzoic acid, which was before held in solution by the lime, precipitates in the form of a fine powder.

“ Mr. Hatchett has observed, that when benzoin is digested in sulphuric acid, a great quantity of beautifully crystallized benzoic acid is sublimed. This process is the simplest of all, and yields the acid in a state of purity; it claims, therefore the attention of manufacturers.

“ Benzoic acid, thus obtained, is a fine light whitish powder, which is not brittle, but has rather a kind of ductility. Its taste is sweet, hot, and somewhat bitter. Its odour is slight, but peculiar and aromatic. Its specific gravity is 0.657. It hardly affects the infusion of violets, but it reddens that of turnsole, especially when hot.

“ Heat volatilizes this acid, and makes it give out a strong odour, which excites coughing. When exposed to the heat of the blow-pipe in a silver spoon, it melts, becomes as fluid as water, and evaporates without taking fire. It only burns when in contact with flame, and then it leaves no residuum behind. When thrown upon burning coals, it rises in a white smoke. When allowed to cool after being melted, it hardens, and a radiated crust forms on its surface. When distilled in close vessels, the greater part of it sublimes unaltered, but some of it is decomposed. This portion is converted almost entirely into oil and carburetted hydrogen gas.

“ This acid is not altered by exposure to the air. Two hundred parts of cold water dissolve 1 part of it; but 1 part of it dissolves in  $24\frac{1}{2}$  parts of boiling water.

“ Neither the simple supporters nor combustibles have any sensible action on it at the common temperature of the air, as far as is known. But very few experiments have been made on the subject.

“ It combines with alkalies, earths, and metallic oxides, and forms salts known by the name of *benzoates*. The alkaline benzoates are soluble in water. So are the benzoates of barytes, strontian, and magnesia. Those of alumina, yttria, and lime, are but sparingly solu-



ble. The only metallic salts which form insoluble precipitates when mixed with benzoate of ammonia are those of tellurium, mercury, and iron. Tellurium and mercury are precipitated white; iron orange. Berzelius has proposed benzoate of ammonia as an excellent agent for precipitating iron and separating it from other bodies with which it may be united. From the experiments of Hisinger the method appears to be a good one, provided the iron be in the state of peroxide and the liquid contain no excess of acid.

“ Concentrated sulphuric acid dissolves benzoic acid without heat, or any other change, except becoming somewhat brown: when water is poured into the solution, the benzoic acid separates, and coagulates on the surface without any alteration. Nitric acid presents precisely the same phenomena, as does also the sulphurous acid. Neither the muriatic, nor the phosphoric acids dissolve it. Acetic acid, when hot, dissolves it precisely as water does; but it crystallizes again when the acid cools.

“ Alcohol dissolves it copiously, and lets it fall on the addition of water. Boiling alcohol takes up its own weight. One hundred parts of cold alcohol dissolve scarcely 56 parts of benzoic acid.

“ This acid is sometimes used as a medicine, but much less frequently than formerly.

“ Benzoic acid has been analysed with much accuracy by Berzelius. According to his experiments, it is a compound of

Hydrogen	. . . .	5.16 or 6 atoms	=	0.75
Carbon	. . . .	74.41 15	=	11.25
Oxygen	. . . .	20.43 3	=	3.00
				<hr/>
				15.00

“ According to this analysis it contains 24 atoms, and an integrant particle of it weighs 15. The constitution of benzoate of lead agrees very well with this determination. According to the analysis of Berzelius, it is composed of

Benzoic acid	. . . . .	100 . . .	14.893
Yellow oxide of lead	. . . . .	94 . . .	14

The equivalent for benzoic acid according to this salt is 14.893, which does not differ 1 per cent. from the number obtained by the analysis of the acid itself.

“ Chemists had long suspected that an acid could be obtained from tallow, on account of the acrid nature of the fumes which it emits at a high temperature; but it was M. Grutzmacher who first treated of it particularly, in a dissertation *De Ossium Medulla*, published in 1748. Mr. Rhades mentioned it in 1753: Segner published a dissertation on it in 1754; and Crell examined its properties very fully in two dissertations published in the Philosophical Transactions for 1780 and 1782. It was called at first *acid of fat*, and afterwards *sebacic acid*.

“ But at the period when these chemists made their experiments, the characteristic properties of the different acids were not sufficiently known to enable them to distinguish acids from each other with precision. Thenard examined the subject in 1801, tried all the processes of Crell and Guyton Morveau, and found that the acids procured by them were either acetic or the acid employed in the process. Thenard found

however, that a peculiar acid was formed during the distillation of tallow. To it he consigned the appellation of *sebacic acid*. The experiments of this chemist were repeated in 1804 by Mr. Rose, who obtained similar results, and confirmed all the observations of the French philosopher. The subject soon after was resumed by Berzelius, who in an elaborate dissertation, published in 1806, proved that the sebacic acid of Thenard is nothing else than benzoic acid contaminated with some unknown substance derived from the fat, which alters some of its properties, but from which it may be freed by proper precautions. There does not therefore exist, as far as we know at present, any acid to which the name of sebacic acid belongs."

Benzoic acid has been also found in the urine, particularly when there is a deficiency of phosphoric acid in it. Fourcroy and Vauquelin state that it exists always in the urine of graminivorous animals; but this has been denied by M. Giese. When it exists in the animal kingdom it is usually in combination with potash or lime.

**MEDICAL PROPERTIES AND USES.**—This balsam was formerly considered to be expectorant, and was esteemed for its virtues in asthma and other pulmonary affections: it is now, however, justly discarded from practice, and is merely valued in medicine as yielding the *benzoic acid*, which is somewhat stimulating, and imparts a very pleasant flavour.

*Benzoin* is also used in the preparation of what is called *court plaster*, which it sometimes renders too irritating. The mode of making it, is as follows:—Five ounces of isinglass are dissolved in a pint of water. A quantity of thin black sarcenet being stretched on a frame, this solution is applied warm with a brush equally over the surface; and, when dry, this process is repeated a second or third time. It is finally brushed over with a weak solution of benzoin in spirits of wine, which communicates to it a pleasant aromatic smell.

Benzoin also enters into the composition of the following preparations:—

1. *Fumigating Pastilles.*

Take of Benzoin, 1 drachm.

Cascarilla bark,  $\frac{1}{2}$  drachm.

Myrrh, 1 scruple.

Oil of nutmegs      }  
Oil of cloves        } of each, 10 drops.

Nitrate of potass,  $\frac{1}{2}$  drachm.

Charcoal, 6 drachms.

Mucilage of gum tragacanth, as much as may be required, to



cause the mass to adhere; after which it is to be divided and put into the usual form.

The French method of preparing pastilles:—

“ Prenez, Benjoin . . . . .	16 parts.
Baume du Pérou sec . . . . .	16
Qu'on a fait préalablement dans l'eau pour enlever tout l'acide volatil.	
Santal citrin . . . . .	4
Laudanum . . . . .	1
Charbon de tilleul . . . . .	96
Nitrate de potasse . . . . .	2

“ Reduisez toutes ces substances en poudre tres-fine, melez-les exactement, et faites-en, avec du mucilage de gomme adraganthe, une masse épaisse, dont vous formerez des cônes échancrés en trépied à la base, que vous ferez sécher dans un four faiblement chauffé.”

2. *Virgin's Milk*.—A spirituous solution of benzoin mixed with about 20 parts of rose water, forms a well known cosmetic. Goulard water is also sometimes sold under this title.

3. *Friar's Balsam, Wade's Drops, Jesuit's Drops*.—These preparations are nothing more than the compound tincture of benjamin.

4. *Pectoral Balsam of Honey*.—This is merely a simple tincture of benzoin, or of tolu, and like the following, is highly stimulant and improper for those diseases for which they are commended by their knavish proprietors.

5. *Essence of Coltsfoot*, consists of equal parts of balsam of tolu, and the compound tincture of benzoin, to which is added double the quantity of rectified spirits of wine. It is recommended for coughs and consumptions!!

*Riga Balsam*.—Take of alcohol or rectified spirit, eight ounces; compound tincture of benzoin, two drachms; tincture of saffron, one drachm: mix. A popular nostrum for sprains and bruises; recommended also as a *vulnerary*!

OFF. PREP.—Acidum Benzoicum. *L. E. D.*

Tinct. Benzoini composita. *L. E. D.*







*Copaifera officinalis.*

G. Reid. del.

W. & A. Smith. sc.

London. Published for the Authors. April 1830.

## CLVIII

### COPAIFERA OFFICINALIS.

#### *Officinal Copaiva Tree.*

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*Class X. DECANDRIA.—Order I. MONOGYNIA.*

*Nat. Ord. DUMOSÆ, Lin. LEGUMINOSÆ, Juss.*

GEN. CHAR. *Calyx* none. *Petals* 4. *Legume* ovate.

*Seed* one, in a berried arillus.

SPEC. CHAR. *Leaflets* 2 to 5 pairs, ovate-lanceolate, pointed, obtuse, smooth, with pellucid dots.

*Syn.—Copaiba. Piso Bras. 56*

*Coapoiba. Marcgr. Bras. 130.*

*Copahu. Barr. Hist. de la France equinoct. p. 40.*

*Arbre de Copau. Labat, Amer. v. 2. p. 365.*

*Arbor balsamifera Brasiliensis, fructu monospermo. Raii. Hist. 1659.*

*Balsamum certarum quarundam plantarum, quas Copaibas vocant. Bauh. Hist. 306.*

*Copaifera officinalis. Lin. Sp. Pl. 557; Willd. v. 2. 630; Jacq. Amer. 133. t. 86?; Ait. Kew. v. 3. p. 60; Lam. Ill. t. 342; Decand. Prodr. v. 2. p. 508;*

*Aubl. Guai. v. 1. p. 399; Woodv. v. 3. t. 37. Stokes. v. 2. p. 520.*

FOREIGN.—*Lc Copaier officinal, Fr.; Copaiba, It. & Sp.; Westindischer Copaivabaum, Ger.*

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THE Officinal Copaiba tree inhabits various parts of South America, particularly Brasil, Guaiana, Venezuela, and the islands of Trinidad and Martinique. It is met with in great abundance about Tolu, sixty leagues from Carthagena, growing promiscuously in the woods among trees which yield the Peruvian and Tolu balsam. The drawing here given was made from specimens in the Banksian Herbarium, collected by Aublet, in Guaiana, compared with specimens of the tree gathered by Stewart in Trinidad, and by Mutis; but from what country was not mentioned, probably Brasil. There are six or eight species, from all of which the balsam is supposed to be now collected by the natives of the respective countries in which they grow; but



the greatest quantity is said to be furnished by the *C. multijuga*.\*

This is a lofty tree with a handsome head; the smaller branches are numerous, zig zag, with a nearly smooth, brownish-ash coloured bark. The leaves are alternate, pinnated, consisting of from two to five pair of ovate-lanceolate, smooth, rather wavy, entire leaflets, two or three inches long, pointed, blunt, in some varieties nearly cordate at the base, in others lanceolate, veined, with a stout midrib, narrower on one side than on the other, shining, somewhat coriaceous, not exactly opposite, and placed on short petioles. The flowers are in axillary racemes at the summit of the branches, which are stiff, spreading, the length of the pinnæ, and divided into about eight alternate common peduncles, with the flowers which are white, sitting closely on them. There is no calyx. The petals are four, oblong, acute, concave, spreading and tomentose within; the stamens are filiform, incurved, somewhat longer than the corolla, and bearing oblong incumbent anthers. The germen is roundish, compressed, and hairy; the style is thread-shaped, incurved, about the length of the stamens, and furnished with an obtuse stigma. The fruit is an oval, subcompressed, coriaceous bivalve pod, containing a single elliptical seed, involved in a berried arillus.—Fig. (a) exhibits a flower; (b) a detached petal; (c) a stamen and anther; (d) the germen and style; (e) the fruit: all slightly magnified except the last.

**QUALITIES AND CHEMICAL PROPERTIES.** This resinous substance, improperly called balsam, exudes from incisions made in the tree. The juice thus obtained is transparent, of a yellowish colour, an agreeable smell, a pungent taste, at first of the consistence of oil, but gradually becoming thicker, till at last it is solid like resin. Its specific gravity is 0.950. Distilled with water it yields a large portion of volatile oil, on which its virtues in a great measure depend. Nitric acid acts upon this balsam with considerable energy. When one part of the balsam is mixed with four of nitric acid and two parts of water,

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\* See Hayne, quoted by Dr. Duncan in the Supplement to his excellent Dispensatory, p. 46.

and heated, a yellowish solution is formed, similar to the original balsam, but darker. When distilled there comes over with the liquid that passes into the receiver, an apple-green oil, which lines the helm of the retort. The nature of the residue was not examined. When heated with sulphuric acid, it yields a portion of artificial tannin. Benzoic acid has not been hitherto discovered; and it is supposed by the best chemists, that it does not yield it. Copaiba bears a striking resemblance to turpentine, and seems to constitute a class of bodies intermediate between volatile oils and resins. In commerce, two kinds are usually distinguished, viz. the Brazilian, which was formerly thought to be obtained only from Guaiana, and the island of Maranhão, and the West Indian, which comes to this country from Martinique and Trinidad. The former is thin, clear, of a pale colour, pleasant aromatic smell, and of an acrid bitter taste; while that from the Antilles is thick, golden yellow, not transparent, and of a less agreeable smell.

ADULTERATIONS. “A considerable quantity sold in London is entirely factitious. A curious trial took place some time since, between the owner of certain premises that were burnt down, and the governors of the Sun Fire Office, in consequence of the latter refusing to indemnify the proprietor for his loss, because the fire had been occasioned by the making of Balsam of Copaiba. It is also adulterated with mastich and oil; M. Bucholz asserts, that if it does not dissolve in a mixture of four parts of pure alcohol, and one of rectified ether, we may infer its adulteration; rape oil is also frequently mixed with it, in which case if dropped into water, the drops will not retain their spherical form, as they invariably will, if pure.”\*

MEDICAL PROPERTIES AND USES.—Balsam of Copaiba is stimulant, diuretic and cathartic. It appears to act more powerfully on the urinary passages than any other resinous substance, and is, therefore, generally and very successfully employed for the chronic stages of gonorrhœa, for gleet and fluor albus. “It wonderfully deterges,” says an old writer on the materia medica,† “the reins, ureters, and bladder, when ob-

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\* Paris' *Pharmacologia*, ed. 4. p. 339.

† See Fuller's *Dispensatory*, p. 326.



structed with sand, mucus, or pus; strengthens them when relaxed, and heals them when ulcerated. It provokes urine, extinguishes its heat, and cleanses off its bloody, foul, and purulent contents, more effectually than any thing I ever met with." Its action is soon manifested by a violet odour in the urine; and it is very apt to induce nausea, flatulence, and diarrhœa, which are best obviated by a few drops of laudanum. By the action it produces on the mucous membrane of the large intestines, it is occasionally employed in what Dr. Good calls diarrhœa tubularis; and he remarks, that it is generally useful in chronic inflammation, "or irritable condition of the secernments of mucous membranes." In chronic inflammation of the bladder, or cystitis, and in some obstinate forms of chronic bronchitis, spasmodic asthma, and whooping-cough, combined with narcotics and ipecacuanha, it will be found to afford very effectual relief. Even in croup and other inflammatory affections of the membrane lining the larynx and trachea, where it appears desirable to give stimulants, it is sometimes employed; and is a very efficacious remedy in hemorrhoids of long standing. Dr. Chapman advises copaiba to be poured on half a wine glass of water, to which is to be added slowly, a few drops of a bitter tincture, by which means the copaiba will be collected in a small globule, that may be easily swallowed, and its taste, so nauseous to most patients, entirely masked by the bitterness of the vehicle.

It is generally prescribed in the form of emulsion, in doses of from half to one drachm, three times a day; or it may be taken on sugar, by which it becomes more disposed to act on the urinary organs. Combined with the liquor potassæ, its effects in the last stages of gonorrhœa are much increased, and we have found the combination in the subjoined form, to agree with most stomachs :

R. Copaibæ ℥ss.  
Mucilaginis Acaciæ ℥ij.  
Mellis despumati ʒvj.  
Liq. Potassæ ʒij.  
Ess. Limonis ʒss.  
Aquæ Rosæ ℥v.

Fiat mistura; dosis, cochlearia duo vel tria magna, ter quotidie







*Ruta graveolens.*

W. & A. de L. sc

London, Published by John Churchill, Leicester Square June 1828.

## RUTA GRAVEOLENS.

*Common Rue.**Class X. DECANDRIA.—Order I. MONOGYNIA.**Nat. Ord. MULTISILIQUEÆ, Lin. RUTACEÆ, Juss.*

GEN. CHAR. *Calyx* 5-parted. *Petals* five, concave.  
*Receptacle* surrounded by ten melliferous points.  
*Capsule* lobed.

SPEC. CHAR. *Leaves* repeatedly compound; leaflets oblong; the terminal one obovate. *Petals* entire.

*Syn.*—*Ruta hortensis et montana*, *Ger. Em.* 1255.

*Ruta hortensis major*, *Park. Theatr.* 132.

*Ruta hortensis latifolia*, *Bauh. Pin.* 336.

*Ruta Matth. Valgr. v.* 2. 95.

*Ruta foliis duplicato-pinnatis, lobulis ovatis, n.* 1003, *Hall Hist. v.* 2.

*Ruta graveolens*, *Sp. Pl. Willd.* 2. 542; *Bull. Herb. t.* 85; *Woodv. v.* 2. 483.

FOREIGN.—*Rue*, *Rue des Jardins*. Fr.; *Ruta*, It.; *Ruda*, *Arruda*, Sp.; *Raute*, *Gartenraute*, Ger.; *Ruite*, Dut.; *Ruta*, *Vinruta*, Swed.; *Ruta*, Russ.

RUE is a hardy evergreen under-shrub, a native of the south of Europe, and has been cultivated in our gardens from time immemorial, where it flowers from June to September. In the days of popish superstition and ignorance, it was called *Herb of Grace*, from the circumstance of small bunches of it having been used by the priests for sprinkling of holy water among the people. The stem is bushy, round, and branched, rising to the height of two or three feet, woody at the lower part, and covered with a rough, striated, grey bark; but the upper branches are smooth, and of a yellowish green colour. The leaves are alternate, stalked, doubly pinnate, slightly tomentose, smooth, dotted, and of a deep bluish glaucous hue; the leaflets obovate, sessile,



decurrent, very obscurely crenate, or entire, and tapering at the base. The flowers are of a pale greenish-yellow colour, copious, and produced in terminal corymbose panicles, the terminal ones only having the full number of each of the parts of fructification, while the rest are octandrous, and have the calyx 4-parted, and a 4-petalled corolla. The petals are nearly ovate, concave, spreading, fringed at the extremity, and attached by narrow claws. The stamens are ten, awl-shaped, the length of the corolla, bearing small yellow anthers. The germen is oval, punctured, with crucial furrows, and surmounted by a short awl-shaped style and simple stigma. The capsule is gibbous, 5-lobed, bursting elastically at the summit of each lobe, and containing numerous rough, angular, blackish seeds.—Fig. (*a*) represents a petal; (*b*) a stamen; (*c*) the pistil; (*d*) the germen; (*e*) the capsule; (*f*) a seed.

Rue is easily propagated by slips or cuttings in the spring; and like rosemary, lavender, hyssop, and other similar aromatics, it thrives best in poor dry soils.

QUALITIES.—Every part of the plant has a strong peculiar odour, and a pungent, bitterish, nauseous taste. The bruised leaves are extremely acrid, and excoriate the mouth and nostrils, if incautiously applied, as they often are, to counteract bad smells. Their specific virtues reside chiefly in an essential oil, which they yield on distillation with water.

MEDICAL USES.—Rue is a moderately active stimulant, and antispasmodic, and was much extolled by the ancients. Hippocrates commends it as a resolvent and diuretic, and attributes to it the power of resisting contagion, and poisons. An infusion of the leaves was formerly in much repute, as an anthelmintic, and if taken in sufficient quantity it certainly proves noxious to intestinal worms. Boerhääve, speaking of rue, observes, that the greatest commendations he can bestow upon it fall short of its merits. “What medicine,” says he, “can be more efficacious for promoting perspiration, for the cure of hysteric passion, and of epilepsies, and for expelling poison?” Externally it has been employed in fomentations to gangrenous ulcers; but it possesses no superiority over chamomile, or wormwood for these purposes, and it is but seldom employed.

DOSE.—The dose of the powdered leaves is from  $\mathfrak{z}$ i to  $\mathfrak{z}$ ij.







*Crataegus & Aetosaella.*

W.M. Marshall Sculp.

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OXALIS ACETOSELLA.

*Common Wood-sorrel.*

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*Class X. DECANDRIA. Order V. PENTAGYNIA.*

*Nat. Ord. GRUINALES, Lin. GERANIA, Juss.*

GEN. CHAR. *Calyx* 5-leaved. *Petals* connected at the base. *Capsule* 5-celled, angular. *Seeds* 2, with an elastic arillus.

\* \* \* *Leaves ternate, scape 1-flowered.*

SPEC. CHAR. *Leaves* all radical, ternate, inversely heart-shaped, hairy. *Scape* single-flowered. *Root* squamose.

*Syn.*—*Oxalis alba*, Raii. *Syn.*, 281; *Ger. Em.* 1201. *f.*; *Merr. Pin.* 90.

*Trifolium acetosum*, Camer. *Epit.* 584, *f.* 2; *Matth. Valgr.* v. 1. 191. *f.*

*Oxys.* n. 928; *Hall. Hist.* v. 1. 402.

*Oxalis Acetosella*, *Lin. Sp. Pl.* 620; *Willd.* v. 2. 780; *Fl. Brit.* 491; *Eng. Bot.* v. 11. t. 762; *Curt. Lond. fasc.* 2. t. 31; *Woodv.* t. 20; *Hook. Scot.* 141; *Fl. Dan.* t. 980; *Stokes*, v. 2. 555.

PROVINCIALY.—*Woodsour*; *Sour trefoil*; *Stubwort*; *Alleluja*; *Sorrel du bois*; *Cuckoo's beard.*

FOREIGN.—*Petite Oseille*, *Surelle*, or *Pain a Coucu*, Fr.; *Acetosa salvatca*, It.; *Oxalide arederilla*, Sp.; *Sauerhleec*, Ger.

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THIS delicate little creeping indigenous plant is very generally found throughout Europe. It is a perennial, growing in moist shady woods, and producing its flowers in April and May.

The root is horizontal, and consists of several fleshy reddish scales, connected by a thread. The leaves are ternate, on long, hairy, radical, purplish footstalks; with the leaflets obcordate and entire, drooping in the evening, of a yellowish-green colour, and purplish underneath. The scape, or flower-stalk, is about four inches high, slender, furnished with a pair of opposite bracteas, placed considerably below the flower, which is bell-shaped, drooping, of a delicate white or pale flesh-colour, and

streaked with purplish veins. The calyx is cut into five, acute, ovate segments; petals five, obovate, spreading; filaments capillary, with oblong, furrowed, incumbent anthers; germen ovate, with five thread-shaped styles, and obtuse, downy stigmas. The capsule is 5-celled, membranous, and containing two seeds in each cell, and inclosed within an elastic arillus, by the bursting of which they are thrown out. Fig. (a) shows the petals spread; (b) the styles (c) the stamens.

This plant is called by old Gerarde, wood sour, sour trefoil, stub-wort, and sorrel du bois; by herbalists, alleluya, and cuckoo's meat, "by reason when it springeth forth and flowereth, the cuckoo singeth most; at which time also alleluya was wont to be sung in churches." The names Alleluya and Lujula, appear, however, to be corrupted from the Calabrian name, *Juliola*.

**QUALITIES AND CHEMICAL PROPERTIES.**—Wood-sorrel is inodorous, but possesses a very agreeable and refreshing acid taste. Twenty pounds of the fresh plant yielded to Neuman six pounds of juice, from which he got two ounces, two drachms, and one scruple of the bin-oxalate of potash; and two ounces, six drachms of an impure saline mass.

The bin-oxalate of potass, is one of three subspecies of oxalate of potash, and exists readyformed in *Oxalis Acetosella*, *Oxalis corniculata*, and different species of *Rumex*, from which it is extracted in some parts of Europe in large quantities. Hence it is known by the name of salt of wood-sorrel, and in this country is sold as essential salt of lemons, mixed with an equal quantity of cream of tartar. It is mentioned by Duclos in the Memoirs of the French Academy for 1668. Margraaf proved that it contained potass; and Scheele discovered its acid to be the oxalic. It may be formed, as Scheele has shown, by dropping potash very gradually into a saturated solution of oxalic acid in water: as soon as the proper quantity of alkali is added, the bin-oxalate is precipitated. But care must be taken not to add too much alkali, otherwise no precipitation will take place at all.

**MEDICAL PROPERTIES AND USES.**—The leaves of this plant are among the most grateful of the vegetable acids. The juice of sorrel is sometimes used as an agreeable refreshing drink in fevers, and the leaves boiled in milk form a pleasant whey; but the other vegetable acids are quite as useful and more available: Beaten up with fine sugar, the leaves make a refreshing and wholesome conserve; "its flavour resembling green tea." The leaves in a recent state form a good salad for the scorbutic, and have been employed with advantage as an external application to scrofulous ulcers.



















